YACHTING

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MONA, A 26-FOOT THORNYCROFT BOAT WHICH WAS ONE OF THE MOST SEAWORTHY HYDROPLANES OF THE YEAR

The Development of the Hydroplane in the Light of 1912 Results

By CLINTON H. CRANE

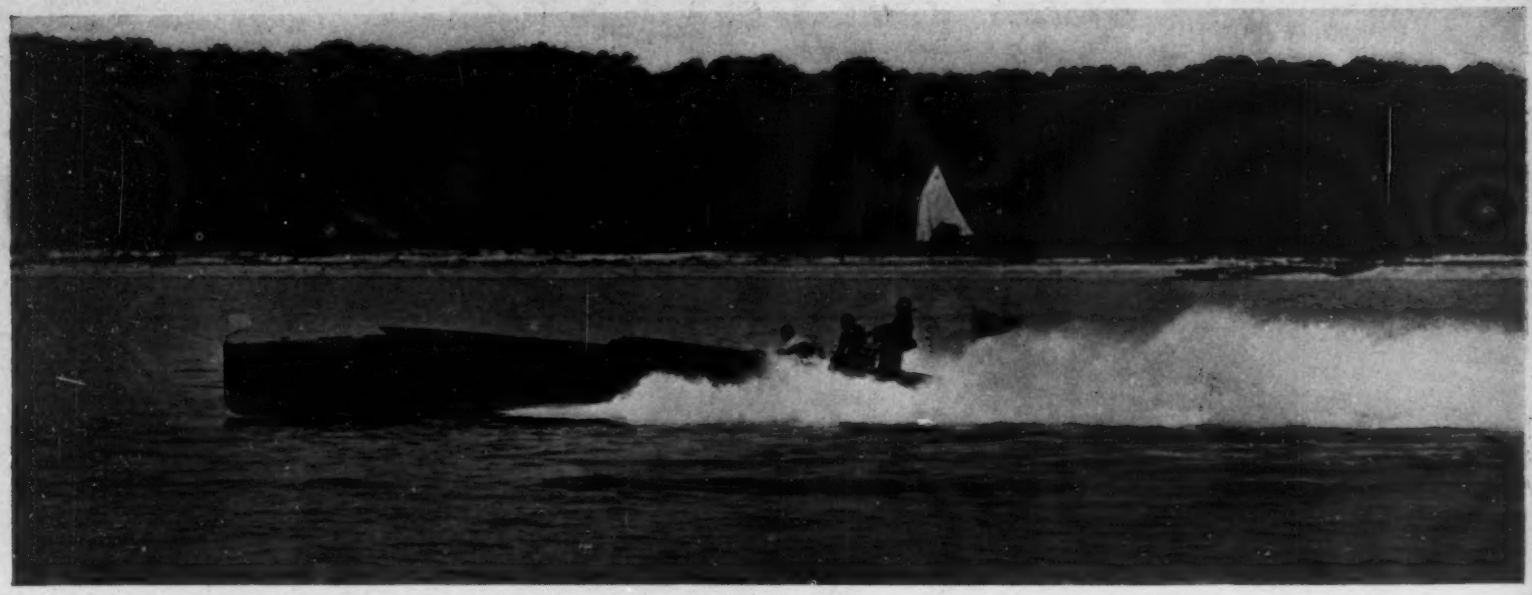
Designer of the Dixies, Ankle Deep, Etc.

THE season of 1912 will probably go down into history as marking the zenith of the hydroplane craze. Everyone in any way interested in boating affairs was talking hydroplane and many people were building them.

There is a certain fatal fascination in the high speed which is possible with this type of craft, and the ever-present hope that we might produce something both fast and reliable has led to the building of many of these boats. I believe that when most of us think of a hydroplane we think of something extremely fast, but even more extremely unsafe. Certainly never before in the history of marine sport, except possibly in the early days of the sailing canoe, has the art of swimming been so needed as it has been by the crews of the hydroplanes of 1912; and this has been true entirely regardless of type—the very fast ones have all of them been prone to do stunts.

MONA AT FULL SPEED. HER FAULT WAS THAT SHE DID NOT RUN AT AN EFFICIENT PLANING ANGLE

Since writing of hydroplanes in the fall of 1911, when I divided them into two distinct types and three sub-divisions of one of these types, another type of boat has been developed which has shown itself capable of extreme speed. My original classification was: hydroplanes whose supporting planes pass through the water and hydroplanes which skim over the water. The boats developed by Mr. Cooper Hewitt and by Signor Enrico Forlanini fall under the type which passes through the water. Our illustration of the Cooper Hewitt boat shows pretty clearly what the principle of this



MAPLE LEAF IV, ONE OF THE MOST SUCCESSFUL TYPES OF FAUBER HYDROPLANES

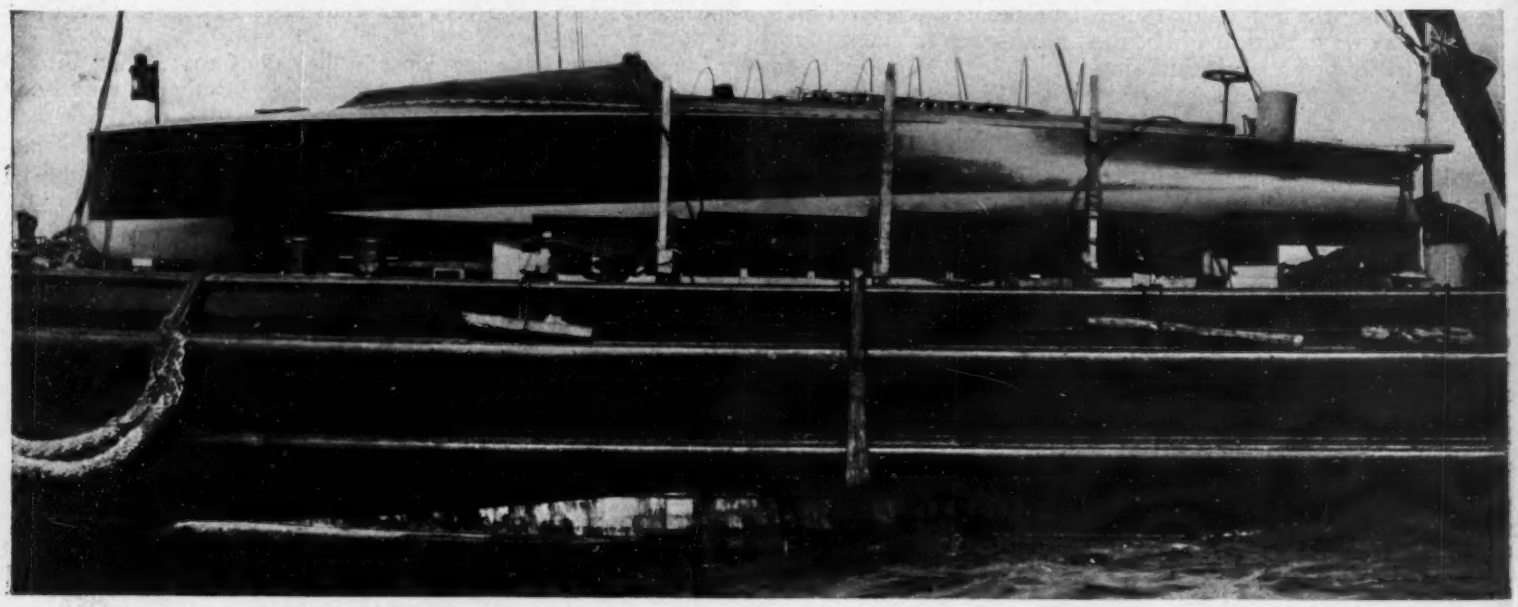
type is. The sub-divisions of the skimmers are: those with no steps at all and those which have one or several steps. We call the ones with no steps monoplanes, the ones with a single step biplanes and the ones with many steps multiplanes. Mr. W. H. Fauber, the designer of Pioneer and of the successful challenger Maple Leaf IV, is the principal exponent of the multiplane type. The various Dixies and the Ankle Deep, designed by my firm, are the best-known exponents of the biplane type. The Tech, Jr., successor to Sand Burr, designed by Mr. Adolph Apel, of Atlantic City, was the most successful exponent of the monoplanes last summer. The Baby Reliances have been classed as biplanes; I consider this an incorrect classification. When these boats are run at full speed their sterns are practically clear of the water; they are running on their forward plane, and probably the inclination of the shaft is what supports the after end of the boat, so that they seem really to be a combination of a monoplane and of the Hewitt type.

Thornycroft has made experiments along this line abroad, and has occasionally used a submerged plane to produce his results. In the case of the Mona he has produced a boat which is extremely seaworthy, owing to the narrowness of the hull aft, but one incapable of extremely high speed, owing to the inefficient angle of inclination of her main planing surface.

There is one point in common with all the successful racing hydroplanes of the past year, and that is the abandonment of an absolutely flat bottom. The Ricochet type of hydroplane has never been built to any extent in this country; for, although they are very fast in a straight line, they have not been able to turn. The Fauber hydroplanes have all of them many steps, with the center of the boat deeper than the sides, the deadrise being concave. The Apel boats are deeper at the sides than in the center. The Baby Reliances are round-bottomed, with rather hard bilges. The trouble with the monoplanes, like Tech, Jr., lies in their inability to run successfully in any sort of a sea. Of course, one may say that no hydroplane runs successfully in a sea; but boats of the other types will stand a good deal more sea than these monoplanes. One of the photographs herewith shows Tech, Jr., in a very moderate sea condition in Huntington Harbor with her forward rudder entirely clear of the water. Maple Leaf and Ankle Deep can negotiate a head-on sea very well, but with a large following sea they are distinctly hampered by their wide sterns.

I do not believe that the development along the lines of Ankle Deep can go very much further. In her case the weight is carried in very nearly equal proportions on her two sets of planes, and, for her weight and power, in smooth water, this is a fairly efficient method. One of the Dixie Juniors, weighing over 3,000 pounds, in perfectly still water ran over the measured mile at the rate of about 42 miles an hour with an engine developing about 90 horsepower.

This was the culmination of a number of rather costly experi-



HULL OF MAPLE LEAF IV, SHOWING SHORT MULTIPLE STEPS OR PLANING SURFACES

ANKLE DEEP, THE BEST KNOWN EXPONENT OF THE BIPLANE TYPE, WHERE THE WEIGHT IS CARRIED IN NEARLY EQUAL PROPORTIONS ON THE TWO SETS OF PLANES

ments, both in the tank at Washington and with the actual first Dixie, Junior; very small differences in the shape and angularity of the planes apparently make enormous differences in speed. It was with great difficulty that we got more than 30 miles an hour out of the first boat tried, and yet the difference between her and the final successful model was very slight. I think there is no doubt that all the really fast boats of 1912 ran at a very small angle, certainly not over 3 degrees with the water surface. Runing at 4 degrees or more meant a loss in speed of nearly 20 per cent.; together with this loss in speed there was very greatly increased safety. The Baby Reliance II, designed by Mr. Smith, of Algonac, Mich., which was the most successful of that family, was about 20 feet long, and, judging by appearances, must have been running at a very slight angle. This boat, according to reports, weighed about 1,900 pounds, and was driven by a 150 horsepower engine.

Making every allowance for short miles and long talk, I think there is no question that this boat was capable of running a mile at a rate better than 50 miles per hour. She certainly gave the impression, for short spurts, of being extremely fast in smooth water. Like the other successful boats, her crews had to be swimmers.

The Mona, to my mind, is, next to Baby Reliance, the most interesting boat of the year. To all intents and purposes she is a modified monoplane, the after end of the boat being nothing but a narrow tail, very much like the tail of an aeroplane, which, together with the slanting shaft, carries the stern of the boat. This narrow stern makes her an extremely good sea boat, as she has none of the tendencies to root which the wide-stern hydroplanes show in a following sea. Whether, if she were designed to run at a really efficient planing angle, she would prove as safe, is a matter which can only be determined by experiment. In other words, can we get the advantage of the very slight planing angle of boats like the Ankle Deep and Baby Reliance and the seaworthiness of Mona combined in a single hull?

It is very evident to anyone who has ridden in a hydroplane that the forward plane is doing by far the most efficient work. The after plane is running in a mass of foam and disturbed water, which is very far from producing the same results as undisturbed water. If we could confine ourselves to still water the hydroplane would be a great success, fascinating to ride in and perfectly safe. Unfortunately, such conditions are rare. It has been perfectly evident to anyone who has watched a stone skip across the water that if a boat is driven fast enough and strikes a wave which will give her an upward motion she, too, will leave the water surface. Last summer this happened to a number of the faster boats. I saw the Baby Reliance go clear of the water in Huntington Harbor on the swell of an incoming steam yacht; it was not a big or a steep wave—just a long swell. A photographer was clever enough to catch the Minnow in the very act of doing one of these

TECH, JR., THE MOST SUCCESSFUL MONOPLANE OF 1912. THE TROUBLE WITH THIS TYPE IS ITS INABILITY TO RUN IN EVEN A SHORT SEA

BABY RELIANCE II AT FULL SPEED. SHE RUNS AT A VERY SMALL AND EFFICIENT ANGLE—PROBABLY NOT OVER THREE DEGREES WITH THE WATER SURFACE

jumps, and, in the case of some of the boats at Monaco last year, there have been some rather extraordinary photographs showing boats in queer positions.

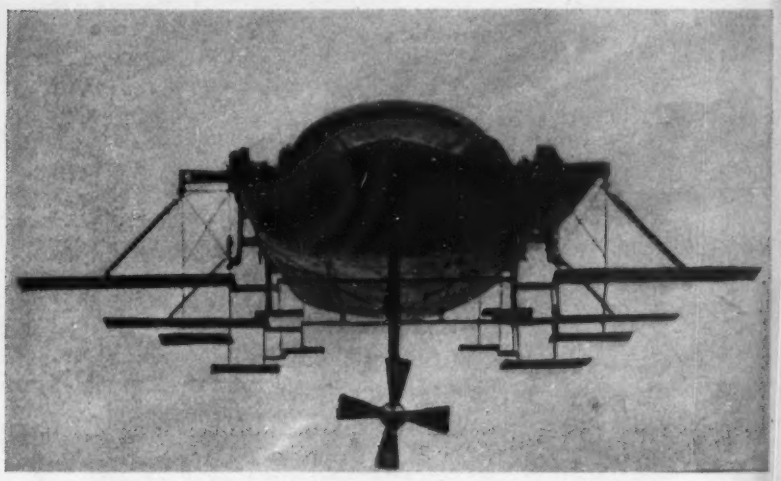
Now, just as in the case of Darius Greene and his flying machine, the jumping is all right; the trouble is with the alighting. If the machine comes down absolutely true, very likely the driver does not know that anything very unusual has occurred; if, however, she does not land true and square, something happens very quickly. The wise ones, when they find the water in such condition that their boats are going to do these jumping stunts, refuse to run at all. Hence the discretion shown by so many of our entries at the trial races at Huntington last year. The smaller and lighter the boat, the more likely she is to indulge in these gymnastics.

One often hears the remark made that size is not important in a hydroplane. This is only true to a certain extent. While admitting that we cannot build a boat 80 feet long which will be successful in hydroplane racing, it is equally certain that a really good 40-footer will beat, in a series of races, the most extraordinary 20-footer that can be produced. In absolutely dead smooth water there is a very faint chance for the 20-footer, but from the time the wind begins to ruffle the surface the big boat begins to increase its advantage, and when there is a real sea running, as there was on some of the days at Huntington, the little boats might just as well stay at home.

It is disappointing that nobody has made an effort to perfect the Cooper Hewitt type of hydroplanes. This boat, on its four posts, with its series of superimposed planes which rose clear of the water, one after another, as she increased her speed, until she was finally riding on the four lowest plates, is a most fascinating conception. It was suggested to me a year ago by Mr. Henry Howard, of Boston, that it might be possible to omit two of the posts and have a veritable bicycle boat which could be kept from capsizing by the dexterity of the helmsman. Such a craft, driven by an aerial propeller, would undoubtedly prove a sensation.

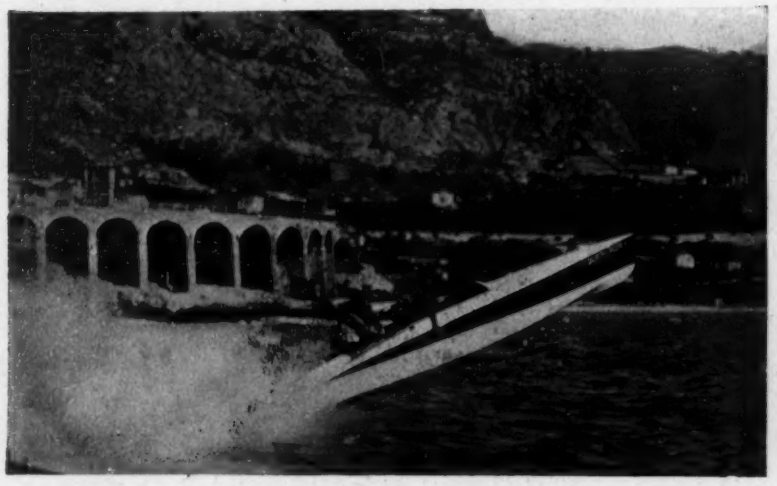
My own vision of the future, however, is of a monoplane with a tail, the main carrying plane to be a cross between that used on the Mona and such as we have used on Ankle Deep and Dixie, the stern to be narrow and carried partly by the shaft and partly by a submerged plane on the Cooper Hewitt type. Such a boat should prove exceptionally fast, and, when slowed down to a reasonable speed, exceptionally seaworthy.

I am not sanguine that a hydroplane running at great speed in rough water can ever be made thoroughly safe; and why should it be? If we should run a sled over ice as uneven as the water surface on a windy day in summer at fifty miles an hour, does anyone suppose it would stay right side up?



COOPER HEWITT HYDROPLANE, SHOWING THE SERIES OF SUBMERGED PLANES WHICH LIFT THE HULL OF THE BOAT ENTIRELY CLEAR OF THE WATER WHEN RUNNING

This article, from one who has devoted the study and done the research on the question of high-speed boats that Mr. Crane has, is especially significant as an unprejudiced estimate of last year's types of hydroplanes and their possible bearing on the future.—EDITOR.



A FREAK PHOTOGRAPH OF SURS LURSEN JUMPING FROM THE EFFECT OF A WAVE AT MONACO

DISTURBER III, A FAUBER HYDROPLANE, SHOWING THE CONCAVE DEADRISE OF THIS TYPE

The Diesel Marine Engine and its Application to Yachts and Small Craft

The Causes that Have Retarded Its Development in Small Power and the Outlook for the Future Along these Lines. That it Will Eventually be Used in Comparatively Small Craft Seems Assured

By E. H. OWEN, Specialist in Diesel Engines

THE question is often asked, "Why has the Diesel engine not been developed in small sizes for yachts, pleasure boats and small working vessels?" With the increased price of gasolene, from which no relief is in sight owing to the constantly increasing demand, it would seem that there was a particularly profitable field for heavy oil engines of the Diesel type for pleasure and small work boats, and particularly for yachts of from 100 to 200 feet in length that were formerly equipped with steam engines which as yet have not been forced out by the internal-combustion type of power. As my interests for the past twelve years or more have been closely associated with the development of this unique type of motor, which works upon what has come to be called "Diesel's system," I shall try to answer the question in this short article and discuss the application of this power to vessels of small size.

It is in the interests of the yacht and boat owner in particular that my remarks shall refer, and in order that the matter may be fundamentally elucidated it will, perhaps, be advisable for me, first of all, to explain thoroughly the cycle of operation which occurs in this type of motor so that the reader may have a clear understanding of what is to follow.

When an engine of this class is first started up it is essential to utilize compressed air for the purpose. After the flywheel has been "barred" round by hand such air stored in an appropriate receiver, or "air-bottle," as we term it, is admitted therefrom to the cylinder-head. The high atmospheric pressure serves to set the crank in motion for a few revolutions, during which a lever, controlling the admission of the fuel oil, is shifted so that, in proper sequence, the supply of compressed air is shut off, and, coincidentally, the fuel is allowed to enter the cylinder by way of a nozzle-valve, designed more or less on the needle pattern. The engine then immediately commences to work under its own power, and, having arrived at this stage, the cycle assumes the following characteristics: The piston, by ascending into the cylinder, on its first instroke compresses unadulterated air to approximately 500 pounds per square inch, admitted through an ordinary inverted mushroom valve on the previous or initial outstroke. At the completion of this compressing stroke the fuel valve is opened by means of a gear-driven cam, by which action the oil is injected, at still greater pressure, into the environment of the compressed air, the heat of the latter being such as to cause instant inflammation of the fuel. This spontaneous combustion continues through a small angle of the crank action—that is to say, the oil continues to be forced into the cylinder during part of the third or working stroke before the supply is finally cut off. I may here interpose the information, not generally known, that it is upon the efficacy of this particular feature that practically the whole efficiency of the constant pressure combustion motor depends. The remainder of the stroke is one of expansion, at the termination of which, on the fourth stroke, the escape valve (of the ordinary mushroom kind, situated in the cylinder head) is opened, and the exhaust products are expelled by the piston.

From the foregoing it will be seen that the cycle is tantamount to the four-stroke cycle evolved so many years ago by the French scientist de Rochas and exemplified in practice more closely still by Brayton, the American engineer. Now, even the most amateur student of internal-combustion engineering will, no doubt, comprehend a significant point—namely, that for marine propulsion especially but one impulse on the piston during four strokes is not looked upon with much favor by those accustomed to steam plants. Both the marine engineer and the shipbuilder would prefer a more steam-like style and a more compact arrangement. Hence, we see that some manufacturers have adopted the two-stroke cycle, which, I presume, everyone nowadays understands to imply a power stroke for every revolution of the crank.

The action in this case is thus: After the engine has been started on compressed air in the manner already described, the piston, by ascending to the cylinder head, compresses air, and into this medium the fuel oil is forced, resulting in the double stage of combustion and expansion during the subsequent down-stroke. On this, the working stroke, the piston passes and unmasks an outlet port situated in the cylinder wall just before the crank has turned the bottom center. Air then admitted, through a valve above, at slight pressure serves to scavenge the cylinder. As the piston travels upwards it cuts off the outlet port, and the remaining volume of the air used for scavenging is compressed, the cycle described then being repeated.

Now the point has often been put to me that where a high-pressure oil motor furnishes merely a single power stroke out of four it must, in a measure, seem inefficient and to occupy a somewhat large space for its output in relation to a double-acting steam engine. But that suggestion is untenable, since it omits the space required for boilers, condensers, and the like, while as to general efficiency (by which I mean both thermal and mechanical efficiency, but not necessarily fuel economy) the steam plant is far behind.

CYLINDER HEAD OF DIESEL-TYPE MOTOR, SHOWING VALVES, LEVERS AND LARGE NUMBER OF PARTS NECESSARY

It might, therefore, appear plausible enough to adopt only the two-cycle principle for Diesel type marine engines. Nevertheless, those who possess the longest and most extensive practical as well as theoretical experience of this constant combustion engine are by no means agreed — even at this late period— upon that important

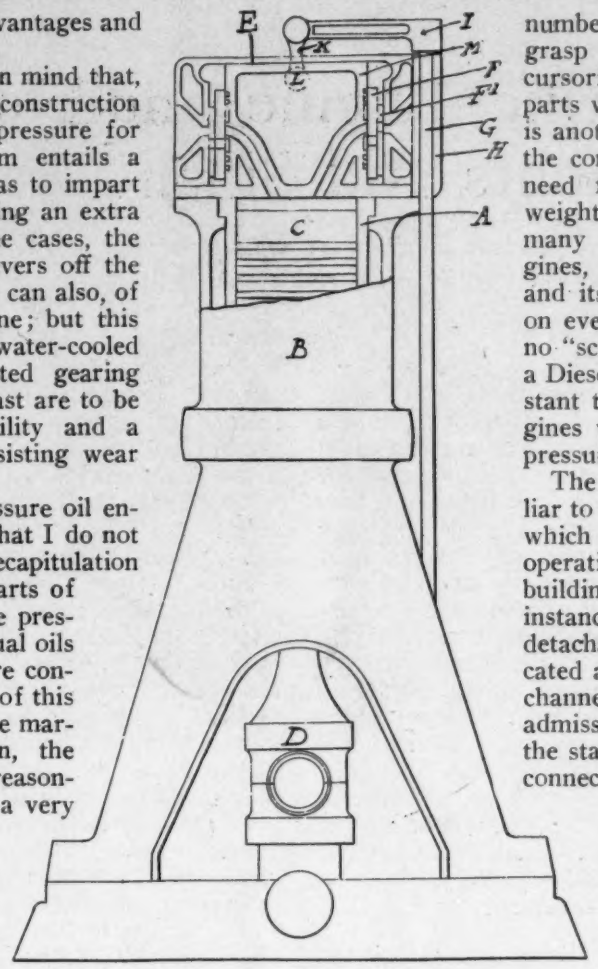
point, for experience has revealed the advantages and drawbacks of both types.

In this connection it should be borne in mind that, apart from the slightly simplified construction achieved in the two-cycle type, the air pressure for expelling the exhaust in such a system entails a scavenging cylinder and pump so large as to impart to the engine the appearance of possessing an extra working cylinder; or, where, as in some cases, the pump, placed laterally, is operated by levers off the connecting-rod. The two-cycle principle can also, of course, be used in a double-acting engine; but this calls for longer pistons and cylinders, water-cooled piston rods, additional valves, duplicated gearing and crossheads and guides, though the last are to be recommended, as they afford accessibility and a smoother running motor, capable of resisting wear for long periods.

The main advantages of the high-pressure oil engine are, no doubt, now so well known that I do not propose to burden the reader with any recapitulation of them. In Great Britain and other parts of the world, however, consequent upon the present prohibitive cost of the crude or residual oils usable as fuel, those who, like myself, are concerned with the commercial development of this style of engine find some hesitation in the market. But ere long the tide will turn, the price of oil fuel will settle down to a reasonable level, and then I confidently expect a very great and permanent demand to arise.

Seeing that the chief interest of the readers of this periodical lies in the application of the lesser-powered Diesel motor to yacht and boat use, the question naturally arises as to the causes contributing to the fact that the engine has not been brought forward on a larger scale for small craft. There are pertinent reasons for the lack of advance in this direction. For example, when the first motor, of 20 horsepower, was made in England (at Manchester) over twelve years ago it was of the horizontal, two-stroke type, while, at that time, in Germany engines of approximately 100 horsepower had been built. It was in view of the obvious benefits able to be conferred by such engines on commercial undertakings that they were at once put forward on every occasion as eminently appropriate for industrial purposes requiring relatively large power units—e. g., for electrical lighting and traction, pumping mills, factories, and the like.

The Diesel type of motor must be exceedingly well built, with very close clearances, and the workmanship that would have to be devoted to an engine of, say, 50 or 100 horsepower is little less than that requisite for a 500 horsepower engine having a similar

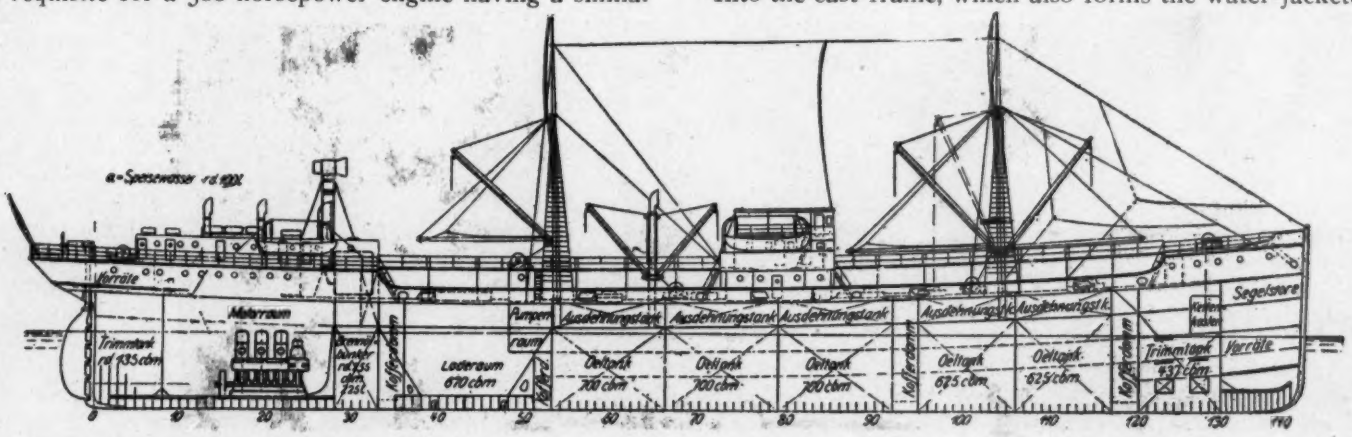


END ELEVATION OF 4-CYCLE DIESEL-TYPE ENGINE OF NEW DESIGN. (SEE TEXT FOR EXPLANATION OF WORKING THEORY)

number of cylinders. The reader will readily grasp this point if he will examine, even cursorily, the numerous fine-made component parts which go to form a Diesel motor. There is another matter which cannot be neglected in the consideration of the question—namely, the need for a rather large-diameter and heavy-weight flywheel. Of course, we can build as many as six or even eight-cylindered engines, thereby reducing the flywheel diameter and its weight; but then the cost is increased on every other item. Moreover, there can be no "scamping" in material or labor as regards a Diesel type engine if it is to be free from constant trouble; and what may do for steam engines will not answer the purpose in a high-pressure combustion motor.

The construction of a Diesel engine is peculiar to itself. That is to say, the high pressures which have to be withstood and the method of operation do not allow of the ordinary style of building such as suits gas and oil engines. For instance, the cylinder head requires to be made detachable, as a rule, and is a somewhat complicated and massive casting. It contains several channels and orifices, principally for the air-admission and exhaust valves, the fuel nozzle, the starting-air valve, and the water circulating connections. All the valves must be secured pressure tight in the cylinder crown, yet in such a way as to be readily removable. The two-stroke system does not lessen the number of parts, as is sometimes supposed. On the contrary, it necessitates an air-scavenging pump with intakes to each cylinder and an exhaust port near the cylinder mouth. In both the four and two-stroke types air compressing mechanism, together with steel bottles for air storage, are essential. In the latter connection a few makers of the engine have adopted what is, to my mind, an intricate contrivance—i. e., a multi-stage air compressor having several stationary radial cylinders in which linked plunger pumps work. This is driven direct off the end of the crankshaft. It is ingenious, and I do not deny its accessibility or that it performs its functions well while in first-class order; but, for myself, I prefer a more simple and much less complex compressor. The earlier and successful engines had a lateral air pump, working vertically off the connecting-rod, and that is the kind still employed by a number of makers having the greatest experience. Some, again, use this style of pump, working off the end of the crank and mounted vertically or horizontally on the bedplate.

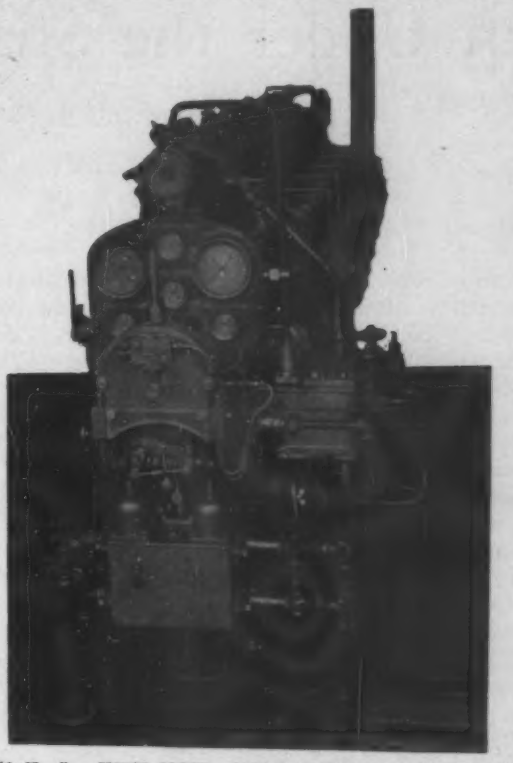
Into the cast frame, which also forms the water-jacketed cylin-



SHEER PLAN OF DIESEL-ENGINED OIL TANK STEAMER, SHOWING ECONOMY OF ENGINE SPACE POSSIBLE WITH THIS TYPE OF MOTOR

der barrel, are inserted the liners on which the piston works. Even where the cylinders are separate from and mounted on box frames use is made of similar liners. These sleeves have to be well machined and fitted, for the joint between cylinder head and barrel occurs at this point. The utmost precaution against leakage of pressure has to be taken. On the cylinder crown are mounted pillars carrying the rocking levers for the valves, while attached to the cylinders themselves are brackets holding the valve camshaft. There are, in addition, spiral gearing and a vertical spindle, which drives the valve shaft and on which the governor works. Fuel, lubricating oil and air pumps go to complete the construction of an engine that is beautifully simple in principle, but which calls for numerous highly specialized components requiring great precision and skill in manufacture.

I have detailed these particulars in order that the reader may gain a clear and true knowledge as to the reasons why Diesel engines have not yet been seen in abundance driving boats on the waterways of the world. Even for the purposes of commerce only a comparatively small number of Diesel-engined craft are in existence, and they range from tugs to sea-going cargo vessels. On the other hand, I believe there will now be little delay before the motor will be available for yacht uses as well.



150-H. P., HIGH-SPEED, MEDIUM WEIGHT AMERICAN-MADE DIESEL HEAVY OIL ENGINE. ABOUT THE SMALLEST SIZE MADE AT PRESENT TIME

Having explained that a heavy flywheel of large diameter is essential even with four cylinders and a four-throw crank (the minimum number to provide a really equalized turning moment), it will readily be understood that, where a single-cylindered Diesel motor is installed (for economy in first cost and up-keep), this drawback is manifestly accentuated. A boat engine must be reliable before all other considerations, and the requisite instantaneous maneuvering cannot well be carried out by a single-cylinder motor. The plight of a navigator with his engine suddenly stopping because the revolutions have dropped below the lowest limit for the crank to be kept in motion can be imagined. With an ordinary oil or gasolene motor of relatively small power this might not prove very serious; but to re-start, say, a 30 or 50 horsepower, one-cylinder Diesel type engine under conditions demanding quick and sure response in maneuvering is not a job that every man cruising for enjoyment would become enthusiastic enough to like.

Hence there is a real objection to the adoption of a single-cylinder engine, and for no boat would I counsel the employment of fewer than four cylinders. Apart from the initial cost of purchase, I am bound to admit, though it be against my own interests, that an ordinary single-cylindered Diesel type motor of, for example, 30 horsepower is not as economical either with respect to fuel at prices at present prevailing in Great Britain, lubricating oil or maintenance charges, as a gasolene engine of the common kind. Nevertheless, this system of deriving power from crude and other low-grade oils is so attractive that the reiterated demand for the construction of engines of small power is certain to be met by enterprising concerns able and willing to embark upon their manufacture.

Owing to the inherent lack in all internal-combustion engines of so-called elasticity, various contrivances have been proposed from time to time to avoid this disadvantage. These usually comprise (1) electrical transmission gear, or (2) hydraulic apparatus interpolated between engine and tailshaft. The idea is to have the engine running at a fixed speed, irrespective of the direction and revolutions made by the screw, which is, therefore, geared down. But for owners of small boats such mechanism is out of the question, since the expense of purchase would be prohibitive. Besides which the adoption of such additional machinery is to be deprecated from the engineering point of view, and my experience has shown that the Diesel engine may be made quite suitable for direct driving of the propeller. A motor that cannot be arranged to drive direct without the intervention of complicated electrical, mechanical or hydraulic gearing stands no chance of success.

With regard to the problem of reversibility in two-stroke engines working on Diesel's system, there is no difficulty about this. When, however, we deal with the four-stroke pattern for small powers, we find ourselves still confined to the well-known reversing gears, clutches, and so forth. Nevertheless, I have good ground for hope that by the aid of a special form of flywheel motion and valve gear we may be able to secure direct and instantaneous reversibility without stopping the engine. By this means there would be no need for equipping the engine with any of the mechanical or compressed air apparatus at present required for reversing the direction of the propeller.

In bringing this paper to a close I am able to present, for the first time, particulars, together with an illustration of an entirely novel design of Diesel type engine, the construction of which is to be commenced shortly for a small yacht. In the figure, which is an end elevation of a vertical four-cylinder, four-cycle engine, the liner *A* fits, as usual, within the integral cylinder frame *B*, part of the piston being visible at *C* and the connecting-rod big end at *D*. The water-jacketed cylinder head *E*, bolted to the barrel in the well-known manner, carries a pair of concentric cylindrical slide valves *F* and F^1 (having horizontal slot ports), which are reciprocated by two lateral slide rods, one of which is indicated at *G*. The lower ends of these rods are coupled at 90 degrees apart to eccentric sheaves on a shaft in the bedplate, turning at one-half the revolutions of the crank axle. Their upper ends, moving in slides (as at *H*) integral with the cylinder head, are each attached to a bracket *I* terminating in a fork *K* secured by pins (as at *L*) to each slide valve. It will be seen that the inner valve works on the water-cooled surface *M*, which has external grooves in which wide packing rings are inserted to maintain the utmost degree of pressure tightness. Within the water-jacketed space of *M* are situated the fuel nozzle and the air-starting valve, neither of which is illustrated, so that the drawing may be clear to the non-technical reader.

The chief purpose of inaugurating this change from the customary practice in Diesel engines is to abolish the mushroom air inlet and exhaust valves. The large area of the ports allows a greater quantity of air to be admitted, especially at slow piston speeds, while an equally free exit for the exhaust is afforded. Pressure tightness is maintained solely by the inner valve, the outer slide being merely the cut-off member for timing at the intake and exhaust periods. This new valve arrangement removes a marked objection to the ordinary Diesel engine, in that it is perfectly silent, the clatter and hammering at the trip of mushroom valves being dispensed with. Further, the valves are not only cooled, but are lubricated independently of the piston.

It is interesting to add that this is the first occasion for true slide valves to be applied to Diesel type engines; a longitudinal liner valve sliding against the piston has been proposed, but it could not for a moment be expected to work efficiently in the great heat and pressure developed by a high-compression motor.

From Under the Shadow

Being an Account of the Loss of the Ship John Parker in the North Atlantic, as Told by One of the Survivors

By C. AUBREY VAUGHAN

Cut on page 183, by Courtesy of Little, Brown & Co., from Capt. Whidden's "Ocean Life in the Old Sailing Ship Days"

IN relating this personal experience of the wreck and abandonment of the ship John Parker at sea in the fall of the year 1879, it is necessary to give a few preliminary details. As a part of my training for the shipping business, in which our family had been engaged for many years as owners of wooden sailing vessels sailing to all parts of the world, I had made several deep-water voyages to supplement the office training I was receiving; consequently, it was no surprise to be told to get ready to sail in the ship John Parker, then due at St. John, N. B., and under charter to load a return cargo to Liverpool of manganese ore, birch timber and deals. Upon the arrival of the ship, Captain Peter Isbister, who was in command, reported the vessel in need of overhauling before making the return trip. As her class had almost run out, it was decided to dock and re-class her, this necessitating extensive repairs under special survey.

The John Parker was a three-decked ship, noted for her sailing qualities under favorable conditions. When in her best sailing trim she could easily log fifteen knots an hour. Twenty years old, with flush main deck, she represented what was even at that date a vanishing type. However, as she had never been allowed to run down, but was always kept in good repair and well found, the ship was as staunch when ready to load cargo as when she came off the ways ready for her maiden voyage.

Some five hundred tons of manganese ore were first loaded, and then the birch timber was floated alongside ship to be loaded through the bow ports. As a stick of birch timber possesses no buoyancy, but alone would sink in water like a stone, the rafts delivered alongside were of birch and spruce timber, alternate sticks, the spruce being required to float the birch. The deals to complete the cargo were loaded in the third deck, so that, excepting these deals, the ship carried a dead weight cargo that would sink like lead.

When fully loaded and ready for sea, Captain Isbister notified me to be on board. I had already picked out my stateroom, next to that of the first officer, and had all my belongings in place. The captain's quarters were in the stern of the ship. The first and second officers, steward and I occupied separate staterooms off the main cabin, where our meals were served. The boatswain, carpenter and cook berthed in a deck house amidships, which contained the galley, and the crew in the forecastle forward.

To take a glance at my companions: Captain Peter Isbister was a big, burly Scotchman from the Orkney Islands—a fine type of a seaman, and a very strict disciplinarian, as the smart appearance of the ship showed. The first officer was Thomas Adkins (English). He had a master's certificate, and was a good seaman, devoted to his profession. The second officer, Charles Fry, also an Englishman, was a little out of the ordinary run of merchant seamen. He was well read, not only in matters pertaining to his profession, but in natural science. He had served his apprenticeship in whalers, and had been a boat-steerer, an accomplishment on his part that later was the means of saving the lives of all on board the John Parker. I recall him now with feelings of profound admiration for his bravery, modesty and manly bearing.

The morning of our sailing the boarding-house runners delivered the crew that had signed on for the run home to Liverpool, and, for a wonder, every man came on board sober and ready for duty. The tugboat came alongside, lines were cast off, and the ship got under way. One of the men, with a good tenor voice, struck up the chanty "Whiskey Johnnie"; the crew, joining in the chorus, turned-to with a will, singing, in turn, the time-honored favorites, "Blow a Man Down" and "Away O, Rio." By the time the tug was ready to cast off, the jib-boom had been rigged out and all sails set and sheeted home. The ship was making a good seven knots under royals when the hawser was hauled on board and stowed away.

The course being laid, all hands were mustered aft and lined up, save a man at the wheel and one on lookout. The articles were brought out by the captain and the crew checked off. There were no absentees. The first and second officers then chose their watches, the boatswain going in the second officer's watch. The first officer had first choice of the crew, each officer then choosing a man alternately until all the men had been chosen, including the man at the wheel and the one on the lookout. I was much pleased with the appearance of the crew. They were all middle-aged men of mixed nationalities—English, American and Norwegian, qualified A.B's.

The day we sailed was dull and gray; the sea and sky were both of the same color; the wind, while moderate, was favorable, the ship making an average of eight knots, and by noon the next day we were clear of the Bay of Fundy, with its strong tides and shifting, treacherous currents, and the first leg of our course was laid to the south'ard of the Banks, it being the captain's intention to make a southerly passage and take advantage of the strong easterly current of the Gulf Stream to help us on our way. The captain and officers expressed themselves well satisfied with the way the necessary repairs had been made and with the condition of the ship. A brief spell at the pumps night and morning kept the ship free of water.

On the afternoon of the second day we had our first forewarning of coming disaster. I was standing amidships looking over the weather rail when I heard a terrific crash aloft, a thud on deck and a groan, followed by the startled cries of the watch, as they rushed to the assistance of a seaman lying unconscious on the deck a few feet from where I was standing. A huge iron-stropped block that had fallen from aloft was on the deck alongside of him. Fortunately, the man was struck a glancing blow and escaped serious injury. He recovered consciousness in a short time, but was not fit for duty for a few days. The main upper topsail halyards had parted and the upper topsail yard crashed down on the lower topsail yard, while the block had fallen to the deck. Had it hit the man fairly it would have ground him into pulp. The damage was speedily repaired and the yard run up into place again.

On coming on deck that night I joined the first officer on the quarter deck; he was keeping the second dog watch, from 6 to 8 P. M. We talked over the incidents of the day, and I found him in an unusually serious mood, dwelling upon the loneliness and dangers of a seafaring life and his craving for a billet on shore where he could be with his family. At eight bells I went below with him when the watch was changed. A light rain was falling, and the wind and sea were both rising. Indeed, the second officer's watch were soon busy taking in royals and top-gallant sails, snugging the ship down to topsails for the night. She was running free, logging a good twelve knots.

Pausing in the cabin before turning in, Mr. Adkins looked at the glass and said it was going down so fast he feared we were in for some bad weather. Through the night I roused several times, to find that the motion of the ship had increased to an extent which convinced me the blow predicted by Mr. Adkins had materialized.

On turning out in the morning for breakfast I found Captain Isbister seated at the table alone. This was unusual, for the officer whose watch was below always took his meals with us. In this case it was Mr. Adkins who was absent. I realized at once from Captain Isbister's manner that something out of the ordinary had occurred, and, on making inquiry, the captain told me he was waiting for a report from Mr. Adkins and the carpenter. The ship had sprung a leak during the night that he feared might prove serious.

While we were talking Mr. Adkins and the carpenter reported with the sounding rod. The ship had been pumped out after a prolonged spell, and the sounding rod showed about 8 inches of water in the hold. Captain Isbister instructed the carpenter to sound the well in an hour's time, to determine how much water the ship was making. Going on deck, I found the ship was still running under topsails. It was blowing hard, but from the right quarter, so we were making good headway. At the end of an hour I saw the carpenter making his way to the pumps, accompanied by the captain and both officers. The iron rod with chalked line was lowered down the pump well and soundings taken, which, to our dismay, showed 12 inches of water. Allowing for drainage, this indicated that the ship was making a good 3 inches of water an hour.

"THE JOHN PARKER REPRESENTED WHAT WAS EVEN AT THAT DAY A VANISHING TYPE"

The pumps were allowed to stand for another hour, when soundings were taken again; this time the rod showed 16 inches of water. This disclosed so serious a state of affairs that, after a consultation, in spite of the fact that there was a favoring gale behind us, it was decided to wear ship and beat our way back to Halifax, N. S., the nearest port, distant about 300 miles by dead reckoning. Instead of a favoring gale and a sea running with us, the ship was now beating, close-hauled, into the teeth of a heavy gale and nasty head sea. The bow of the ship was a smother of foam as the seas continually burst on board, the shock of the heavy waves jarring the ship from stem to stern. However, we anticipated no trouble in making Halifax within two days, where the required repairs could be effected.

It now became necessary to turn-to at the pumps every two hours to keep the leak under control. I was on deck at 6 P. M., when the water from the pumps, that had been coming up muddy and dirty, was noticed to be flowing out of the scuppers clear and bright. Mr. Fry took the soundings at the pumps and the line showed 8 feet of water in the hold—a tremendous gain. Driving the ship all day into a head sea had materially increased the leak, and our position was becoming perilous.

In order to reduce the pressure and, if possible, control the leak, it was decided to heave the ship to—an operation calling for fine seamanship in the sea that was running. However, it was accomplished safely, and the ship now rode easily. All hands were turned-to at the pumps and a material gain made on the water in the hold. That night I kept the watch from 8 P. M. to 12 M. with the second officer, in an endeavor to learn just how hazardous he considered our position to be. He said the leak was somewhere forward, but how far below the waterline it was impossible to tell, and was probably caused by starting a butt—or the ship might have struck a submerged log, or a seam might have been overlooked and left open by the caulkers.

While we were talking Captain Isbister came on deck and instructed Mr. Fry to call the carpenter and have him prepare and launch a sea anchor or drag to keep the ship's head up to the sea and make it easier for the man at the wheel. I went forward with the second mate and watched the carpenter make the sea anchor from some heavy spars. When it was launched over the lee bow at the end of a strong line, it drifted rapidly out of sight in the storm and darkness, and after a considerable length of line had run out it was made fast. I made out from Mr. Fry that, if the gale continued and held from the same quarter, the drift of the ship to leeward made the prospects of our fetching Halifax a matter of doubt; and as the ship could not be driven and the leak kept under, he feared we might have a difficult problem at best as to what to do. He then went below to call Mr. Adkins to come on deck and relieve him.

Standing on the poop alone, except for the man at the wheel, whom I could see dimly by the faint light of the binnacle, I began to realize the grim possibilities confronting us. The roar of the gale through the rigging, the driving sleet and the huge black seas over which the ship was riding uneasily—their foaming crests visible only a short distance in the intense darkness of the night—stamped on my mind a picture that time will never erase. As I groped my way across the wet and slanting deck to the companionway to go below for the night, I was fully alive to the peril we were in.

In the morning the gale had not abated and there had been no shift of wind. The ship was still hove-to. On coming on deck I saw a lot of weary men at the pumps, a gush of bright, clear water coming alternately from the starboard and port pumps, which now had to be kept going continuously to prevent the ship from filling.

As we were now working for our lives, I asked Captain Isbister where I could be of the most service. He asked me if I could go aloft. When I said "Yes," he pointed out to me a man stationed in the main cross-trees who was sweeping the horizon with a pair of binoculars, and said if I would relieve him and send him down he would be of more service at the pumps than I could be.

"Keep a sharp lookout in all directions for a sail, and if you sight anything hail the deck at once," he told me. I mounted to my place and relieved the man, and then watched him slowly

clambering down the ratlines until he reached the deck. I saw him join the gang at the pumps, and then I turned to scan the horizon. There was nothing in sight—only a gray sky with heavy masses of clouds traveling rapidly, and under them big, leaden masses of water heaving tumultuously and breaking into foaming crests. Below me, the hull of the ship looked curiously narrow to support such a towering fabric of masts and spars. The clank of the pumps and the hoarse cries of the men came up with curious distinctness. The loneliness and isolation, combined with the desolate outlook, made me glad when I was relieved and determined me to take my turn at the pumps rather than go on lookout duty again—which I never did thereafter, although until we abandoned the ship a man was stationed in the main cross-trees during daylight hours. There was too much time to think up there!

The continuous work at the pumps was wearing the men down to the point of complete exhaustion, but every man was doing his duty without grumbling. We had a donkey-engine on board used for cargo purposes. After dinner the tarpaulin was taken off the engine and Mr. Adkins said he thought he could rig a gear that would enable the engine to work the pumps. The boiler was filled with salt water, steam raised, and, to our great relief, after a little adjusting the pump handles were going round and the water pouring out in good style. Relief came to the men just in time. We all felt more hopeful and congratulated Mr. Adkins for his good work in harnessing steam to do the work when human endurance was failing.

The steady succession of gales from the same quarter was a source of great anxiety. The drift of the ship to the south and east was carrying us rapidly out of the regular track of shipping, and our chances of sighting a sail and obtaining assistance waned with every mile of leeway the ship made. Since leaving port we had not sighted a single sail; the position of the ship could only be placed approximately by dead reckoning, since the last glimpse of the sun we had was on our second day out.

Lookout duty in the main cross-trees was not popular with the men, although it was becoming a duty of the greatest importance, and the keenest sighted men were now selected for this work. I understood why the men dreaded the isolation. We sought each other's company; the distance that separated officers and men was narrowing; we were all men facing a common peril, and great danger is a great equalizer.

On the afternoon of the second day after starting the donkey-engine we had a rude awakening. The carpenter, who was running the engine, reported that the pumps were throwing much less water. Investigation showed that the pump leathers were fast wearing out through the continuous work imposed on them. Captain Isbister at once gave orders to the carpenter to cut new leathers. To our consternation, he reported he could not find any leather among his stores. A feverish search was instituted, but without result. It was a body blow—men looked at each other grimly and tightened their belts. Continuous pumping had enabled us to keep about even with the leak; but now, with reduced power of the pumps, the water began to gain in an ominous manner.

Captain Isbister called all the officers, including the carpenter and boatswain, into the cabin for a consultation. I was present. The captain unrolled the chart and showed us where he had located the ship by dead reckoning. It was on the edge of the Gulf Stream. He gave as his opinion that the only thing to do was to stand by the ship as long as she floated. We could not take to the boats, as the whale boat, that would hold fifteen men at a pinch, was the only boat fit for service, and we were twenty-five, all told. The long boat, which could have carried all hands, was not seaworthy, and could not be made so. The carpenter had quietly made an examination of it a few days before.

Mr. Fry, the second officer, then addressed the captain.

"Captain," said he, "have you taken into consideration what may happen when the water reaches the 'tween-decks (the upper or third deck), where the dry deals and boards are loaded?"

"I do not just understand what you mean, Mr. Fry," the captain replied. "I count on that portion of the cargo to keep the ship afloat after she waterlogs."

"Then, captain, you have never been in the Atlantic deal trade," said Mr. Fry.

"No; I have always been in the East India trade; this is my first trip in the North Atlantic timber trade. What advice have you to give us, Mr. Fry?"

"The situation is most serious," replied the second mate. "We have the 'tween-decks loaded full with dry deals and boards, which will soak up water as it reaches them, swell and burst open the deck and upper part of the ship. In fact, with the sea that is now running the ship will not float twelve hours after she fills unless we can do something to relieve the pressure. My advice is to open the main hatch and jettison enough of the cargo to allow for the expansion. Put two crews to work on both sides of the ship discharging deals. The danger of cargo breaking loose and causing damage is, in my opinion, the lesser evil of the two."

Mr. Adkins agreeing with the second mate, Captain Isbister gave the necessary orders and instructed the former to write up the result of the consultation in the log book and see that all present attached their signatures. Then we all filed out on deck and the boatswain's hoarse call for all hands rang through the ship. The men came tumbling out, anxious and excited. Mr. Adkins took charge, and the carpenter, forcing the battens off, opened the hatch. The deals were then broken out.

Two men were stationed on each side of the hatch and one man at each rail to guide overboard the deals as they were passed to the side by the men working on deck, and as rapidly as room below was made for them the seamen went below; soon there were two lines of deals floating in the wake of the ship as far as the eye could see.

I took my station at one of the rails to do my part by guiding the deals over the side as they came. After about three hours' work the increasing sea caused the ship to roll more heavily and made it too dangerous for the men to continue work below; so, hastily securing the cargo from shifting, the men were mustered out and the hatches closed until conditions became more favorable.

The carpenter, who had the donkey-engine in charge, now reported that he would have to draw the fire and empty the boiler, as condensation was choking it with rock salt and he could not make steam, but that a few hours' work would enable him to clear the boiler and get up steam again.

The men, after two days' rest from pumping, were quite fresh, and soon had the handles going around in a lively manner. The steady gain of water and the waning efficiency of the pumps was now a matter of the gravest moment. I took my turn at the pumps, knocking off when the watch changed at 6 P. M. The carpenter, with an assistant, was still tinkering away at the boiler, but not making much headway. The rock salt was so hard that it defied his efforts to chisel it out. He finally realized the futility of the attempt and notified the captain that he would not be able to start the engine again.

Blows were falling quick and hard now, and the most hopeful among us realized the end was in sight unless succor came very soon. When darkness set in that night I wondered if we would see the closing of another day. About 7:30 P. M. the starboard pump gave out, and all attempts to remedy the trouble were unavailing. The port pump was still working and was our sole resource.

There was practically no conversation at supper that night. Captain Isbister retired to his quarters as soon as he had finished. The first officer and I went on deck, although it was our watch below. Two men could be seen by lantern light toiling away at the pump that was still working. With the water stealthily but surely rising in the hold, we all felt the futility of further effort, and, with it, the sense of the utter despair that was closing with an icy grip upon all our hearts.

The ship's motion was now very sluggish; she rose slowly to meet the seas that were breaking over her with increased frequency. The first mate said he was going to turn in, and advised me to do the same. I decided to do so, as nothing could be more

THE BARK GENERAL SEDGEWICK WHICH RESCUED US WAS A TYPICAL AFRICAN WEST COAST TRADER

dreary than the scene the decks presented. Before turning in, however, which I did without undressing, I hooked back my state-room door to get the light from the swinging lamp in the cabin and for the sense of human companionship the steady clang of the pump afforded me. Falling into a doze, I awakened suddenly to an unusual stillness. There was not a sound, the pump was silent; the steady roaring of the gale and the shock of the great seas striking the ship made the cessation of the familiar sounds more strongly apparent. Then I heard someone enter the cabin. It was Mr. Fry, the second officer, in his oilskins. Calling to him to learn how things were going, he told me the ship had filled (waterlogged), the men had all retired to the forecastle and that he was going to his cabin. The rest of that night no watch was kept on board the old ship, and those who slept, slept the sleep of exhaustion.

At break of day I heard the captain call the steward and tell him to prepare coffee for the cabin and to call the cook to get coffee for the crew. In a few minutes I heard the steward report he could not get any fresh water from the tank in which the water supply for the ship was stored—that it was as salt as the brine. Investigation showed that the breaking of the cargo between decks and the influx of the water in the hold had floated the now loose deals, one of which had broken the pipe connection with our fresh-water tank, allowing the tank to be flooded with salt water. We had not a drop of fresh water on board—not enough to make a single cup of coffee! This last calamity was a stunning one, coming, as it did, so closely after the others.

Getting into my oilskins, I went on deck with the captain. While prepared for changes, the scene was appalling; the sails we still carried were all the topsails, foresail, mainsail and fore-topmast staysail; the decks were level with the water and great seas were continually bursting on board, as if anxious to complete their work. The ship was like a half-submerged reef over which the seas were racing. The wheel was swinging idly to and fro—as the ship would not now answer the helm, there was nothing for a helmsman to do. It was very dangerous to attempt to traverse the decks, on account of the constant succession of seas that were bursting on board.

"We will have to get ready to go up to the tops," said the captain; "call Mr. Adkins and tell him to get out a supply of cabin stores to send to the tops."

He then called the carpenter, who was standing near, and told him to get a bolt of canvas and secure wind shields around the fore, main and mizzen tops for shelter. Turning to me, he said: "From the looks of things, we will all have to take shelter in the tops before many hours. We will hang it out as long as we can."

As I went below to find Mr. Adkins, I heard the captain order one of the seamen up to the main cross-trees, cautioning him to keep a sharp lookout. Finding Mr. Adkins, I transmitted the captain's orders. As he and the steward could attend to all there was to do, I left them at work and went on deck again and joined Mr. Fry. The wind seemed to be subsiding a little, but the seas were growing heavier, and the sky presented a very threatening appearance—heavy masses of cloud passing with great velocity overhead.

On remarking on these conditions to Mr. Fry, he said: "I have just been looking at the glass. I have never seen it lower; I do not like the looks of things at all. This big sea that is now coming up indicates a lot of wind somewhere. I fear we are going to run into a hurricane." "In that case," I said, "the old ship will not last long." "No," he answered, "but we will be as well off on board here as we would be in boats, for no boat could live long in the sea that is now making up."

At this moment we heard a hail from aloft: "Deck ahoy! Deck ahoy!" It was the man in the main cross-trees; with arm outstretched, he was pointing directly astern. Mr. Fry hailed him in return to report what he saw. The man answered that he could see the topsails of a square-rigged vessel coming up astern. With one leap, Mr. Fry was in the main rigging, going up like a a cat over the futtock shrouds—faster than I had ever seen any man travel before—and in a trice was alongside the seaman. I shouted, "Sail in sight astern!" down the companionway, so the captain and Mr. Adkins could hear. They, followed by the steward, came rushing up on deck. Captain Isbister hailed Mr. Fry, who confirmed the seaman's report, and then we saw him start to make his way down.

On reaching the deck he reported that a small, square-rigged vessel was coming up directly astern, and if she held her present course would pass close enough for us to signal her. The captain went below for the signal book, at the same time ordering the steward to bring the signal flags from the flag locker, and told the second mate to have the ensign run up, union down. By this time the news had spread through the ship and all hands were on deck. They were clustered aft, in their anxiety to be in touch with what was going on—an anxiety we all shared. Would the vessel astern pass close enough for us to speak her, so that we could signal our great need?

Our ship was not under control, but drifting to leeward at the rate of two or three knots an hour; so, unless the vessel astern altered her course to speak us, she would pass too far away to read our signals. With faces drawn with anxiety, all eyes were now directed astern. The minutes and quarter-hours crept slowly by; the vessel could now be made out from the deck, and we could see she was bark-rigged and coming up very fast. Slowly she edged towards us, and when it became certain she would pass within speaking distance a hoarse cheer rose from the men, in which we all joined.

The signal flags were bent on and sent fluttering up in the stiff wind that was blowing. The signals read: "Want to abandon;

ship in sinking condition; will you send boat?" We waited eagerly for their answering pennant, when it was run up: "Your signal read and understood."

It was then hauled down and other flags were run up which read: "Will stand by you to take off crew. Cannot send boat; are short-manned." The vessel had now drawn so close that we could see a big surf boat on the deck house, such as African traders use for running the surf on the West Coast—an ideal boat for use in such a sea as was now running, but as there were very few hands on deck, we realized we would have to depend upon our own resources.

We now signalled: "Stand by; getting ready to abandon ship." All hands being mustered aft, Captain Isbister addressed the crew briefly, saying: "Men, we have done all we can to save the ship; but, as there is no hope for her, I have signalled the bark to ask if she will take us off. Every man must enter the boat as he stands. The officers may take their instruments, but no personal belongings. Mr. Fry, get the whale boat ready, select the men you require to man her, and get her over the side as soon as possible. You will take charge, as you are the only one who has had any experience in handling whale boats in a heavy sea."

This order was immediately carried into effect. With great difficulty the boat was successfully launched on the lee side. A whip was rigged from the end of the main yard arm to enable the men going in the boat to swing off the bulwarks and drop into her as she rose and fell in the surge of the sea. The two men, who had been launched in the boat, one of whom was the second officer, were fending her off from the ship by means of oars they held in their hands. One by one the men, seizing the line, swung out over the boat, to drop into her as she rose on a sea, the line then being drawn back for the next man. Six oarsmen, Mr. Fry, steersman, and six seamen were the full complement, the six men being transferred lying at full length in the bottom out of sight.

The perilous passage to the bark began, Mr. Fry standing in the stern at the steering oar and shouting instructions to the boat's crew. We who remained behind watched their progress with tightened hearts. If they capsized, our last chance was gone. Time and again as they vanished in a hollow of the seas we thought they were gone, but always they reappeared a little closer to their mark. Finally they disappeared on the lee side of the bark; the men who had been lining her weather rail watching the boat now disappeared, and we could see by the glass that they had rigged a whip from the fore yardarm and that our men were being transferred.

Presently we saw our boat appear again from behind the stern of the bark on her way back to us once more. This time Captain Isbister told me I was to go with five of the crew. On the boat's return I took the line and swung off into space some 12 feet from the ship's side. All that could be seen was a vast hollow as the surge receded; the boat in the bottom looked very small and far away, when all at once I saw her rising to meet me as the sea rose and heard Mr. Fry's shout to let go. I dropped into the boat and was told to lie down in the bottom. One by one five others followed, timing their jump to meet the boat as she rose on the sea. Of the trip between the vessels there is very little to tell. At one moment in a great abyss, nothing to be seen but the sky overhead and the towering walls of water all around, then lifted on the pinnacle of a huge wave, when one felt certain the boat must capsize in the smother of foam at the crest, and the sickening, dizzy drop again into the depths. But there was always the cool word of command from the man in the stern, with the sure, certain sweep of the steering oar, which time and again saved us from the most imminent peril.

On reaching the side of the bark we saw a row of friendly faces lining the bulwarks, our six men among them. A skillful cast of a holding line, and we were fast, some 10 feet or so away from the side of the vessel. The transfer began, a man taking in the slack of the line rigged from the foreyard arm as the boat rose on the sea and holding fast as she dropped again. One by one we were swung in to the fore chains and climbed on board to safety before the next sea rose to drench us, as happened to some of the men. I was one of the lucky ones, escaping a wetting.

The third and last trip was successfully made, bringing the captain, first officer and the rest of the crew. Then it was remarked that the boat held thirteen men each trip she had made—certainly not an unlucky number in our case!

The rescuing vessel was the bark General Sedgewick, from Boston, Mass., bound for Liberia and the West Coast of Africa on a trading voyage. There was on board, as passenger, a Mr. Jackson, of Newark, N. J., going out as U. S. Consul to Liberia (should this narrative meet his eye I would indeed be glad to meet him again). We received a very warm and friendly welcome from all.

We now went on deck to take a last look at our old ship. The picture she presented gripped our hearts hard. While the process of transfer had been going on the sea had been steadily rising. It was a marvel that any boat so heavily laden could have lived in the breaking seas that surrounded us. Weather conditions were changing rapidly; the sky was taking on a most sinister appearance. Heavy masses of black clouds were forming. A strange green pallor projected itself over everything. In the foreground lay our abandoned ship, her topsails still aback, the hull not rising and falling with the seas, but lying like a reef with big seas breaking over her, the spray rising as high as the tops.

Orders were now given on the bark to shorten sail. With the men from our ship the yards were soon swarming with men, the fore and aft sails were furled, the vessel was stripped to bare poles in record time, and but just in time. From the quarter where the green light had been so pronounced the storm burst. It came with a terrific roaring sound. We could see a line of white approaching and behind it mist and darkness. It reached the abandoned ship first; we could see her reel to the shock, then she was swallowed up and blotted out by the spray, rain and mist. Whether she sank then or fought a losing battle by herself for a few hours longer, none can tell, for the ship was never seen again.

Our turn now came. With a roar it was on us; sight, hearing and speech were alike blotted out. The vessel bent before it, going over, over, over until we thought she would capsize; then, answering her helm, she flew before the cyclone, her rail awash.

For twelve hours the hurricane raged with unabated fury, the vessel scudding before it lying practically on her beam ends; then the wind suddenly subsided. A terrific sea at once arose and we were tossed about like an eggshell and endured a tremendous bombardment of heavy seas which continually swept the decks. This gradually subsided, and the following day we were slipping along a good ten knots with a smooth sea and bright sunshine.

The remaining incidents of our voyage may be set forth in a few words. One night at midnight we spoke the ship Squando, bound for Hamburg, and all hands were transferred to her. The next day Mr. Fry and eight men were transferred from the Squando to a German bark bound for Rotterdam, and the day following we spoke the ship Tweed, bound from Calcutta for London, when Mr. Adkins, myself and five men were transferred to her, landing in London ten days later.

Away O, Rio

O, say, was you ever in Rio Grande, O! you Rio.
It's there the river runs down golden sand,
For I'm bound to the Rio Grande;
And a-way you Ri-o, O—you, Ri-o.
Sing fare-you-well, my bonny young girls,
For I'm bound to the Rio Grande.

Now you Bowery ladies, we'd have you know, O! you Rio,
We're southward bound—O, Lord, let us go!
For I'm bound to the Rio Grande;
And a-way you Ri-o, O—you, Ri-o.
Sing fare-you-well, my bonny young girls,
For I'm bound to the Rio Grande.

The Ideal 30-Foot Power Cruiser

A Single-Hander for All-Around Use with Comfortable Living Quarters for Two

By RALPH E. WINSLOW, N.A.

THE one salient objection to the small power boat as a cruiser is the fact that the engine usually has either to be taken into the cabin, where it is an undesirable shipmate, to say the least, or else must be stowed away under the cockpit flooring, where it is difficult to get at. The dignity of a separate engine room is ordinarily considered an appurtenance of the larger boat, simply for reasons of space.

However, the design shown here represents an attempt to overcome this common objection by providing a shelter for the engine which will be amply large to work in and at the same time will not in any way cut into the living quarters of the boat. This desirable result is obtained by installing the engine in a small cabin by itself at the after end of the cockpit, with the fuel tanks on the wings under the cockpit floor and an airtight bulkhead dividing that compartment from the cabin. In addition to the advantages already named, this installation has to recommend it the fact that an engine so located is more readily accessible from the cockpit than one in any other place.

It cannot be claimed that this idea is original with the present design, because the practice of building a small cabin trunk over the engine (similarly located) in open fishing boats has come to be quite a common one down East; but as a solution for the unpleasant features of the ordinary small power cruiser it is, I believe, unique. The chief drawback, of course, is that, in order to get sufficient breadth of beam to take the engine so far aft, the lines must come in quite sharply at the stern; but for a cruising boat which is not intended to be driven over eight knots this factor is negligible, and eight knots is surely as high a speed as one would demand from a 30-foot overall cruiser.

Before proceeding to a detailed consideration of lines and construction it may be well to state exactly what the qualifications are for this design, as formulated by the editor of YACHTING: The boat must be capable of being handled by one man in a watch, and must at the same time have permanent living accommodations for two persons, with lockers and stowage space enough for their belongings. In addition, although the boat is not intended for long off-shore runs, she is required to be of a design and construction capable of withstanding any weather liable to be encountered on long coasting runs and yet of a shoal enough draft for use on our inland waterways, especially the large bays and rivers of the South.

The principal dimensions follow: Length over all, 30 feet; Length waterline, 29 feet 4½ inches; beam, 8 feet 6 inches; draft, 3 feet; freeboard, bow, 4 feet 4 inches; freeboard, least, 2 feet 9 inches; displacement, 5.35 tons; ballast (inside), 1 ton. For the benefit of the learned ones I will give a little of her design data:

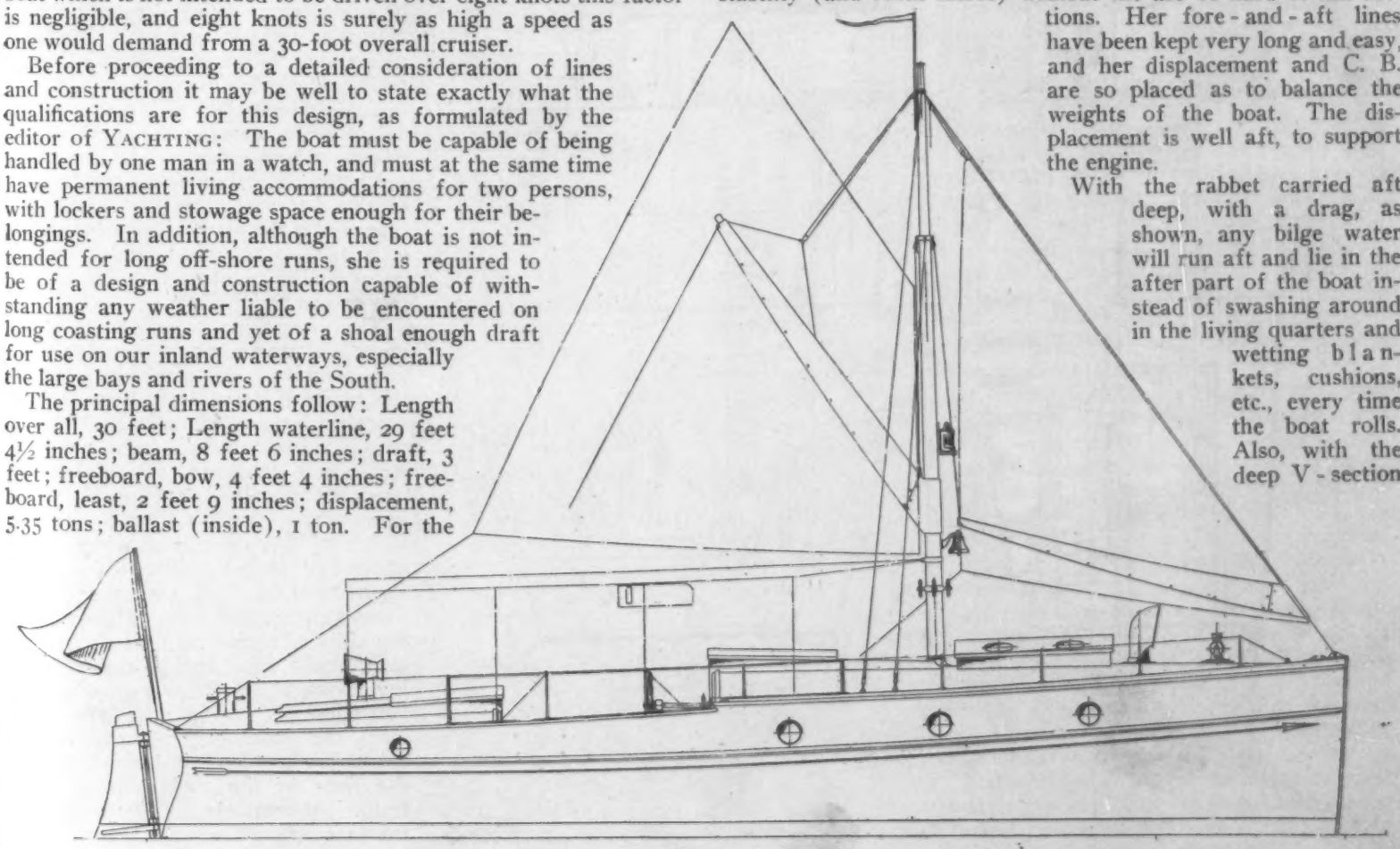
Area mid section, 10.75 square feet; coefficient of fineness of mid section, .60; block coefficient of displacement, .36; area of L. W. L., 159 square feet; coefficient of fineness of L. W. L., .67; pounds per inch immersion at L. W. L., 825.

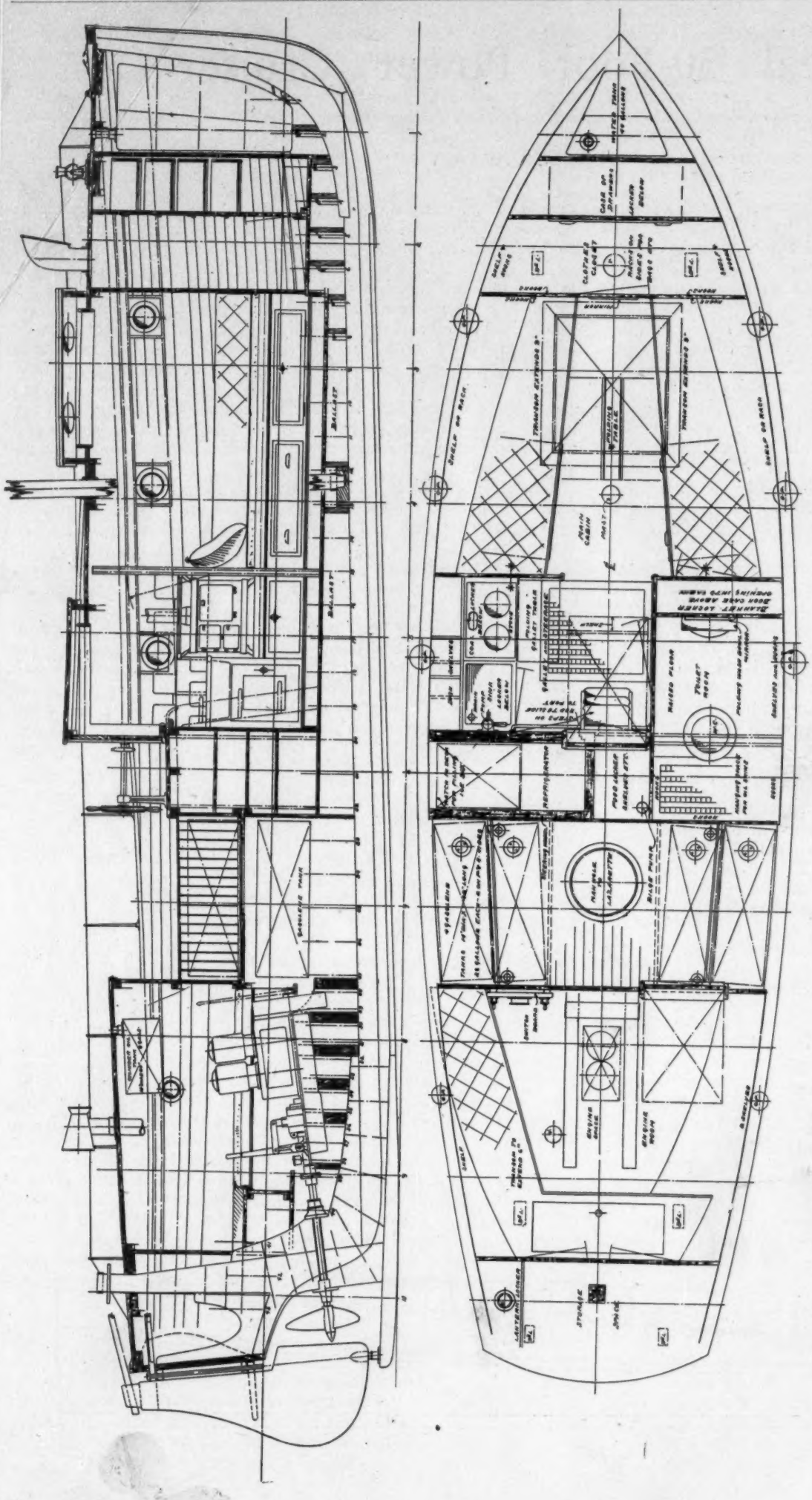
It will be seen from these figures that, although a comparatively heavy hull, she has been carefully worked out to drive as easily and economically with small horsepower as is possible for a boat of her dimensions. She is "all boat," and the overhangs are only enough to prevent too square and boxy an appearance. It has been demonstrated that, if properly designed, the plumb ends are exactly as seaworthy, if not more so, than the canoe sterns and stems, and the plumb ends surely give longer lines and more internal room.

The keel and after body of the boat have been given a great deal of drag, and the after sections are of the S type, in order to prevent yawing and bad steering before a following sea, while the forefoot has been cut away also for the same reason. At the same time, the forefoot is not cut away so much as to prevent the boat having a good hold on the water when going into a head sea or riding well at anchor.

Her underbody has been kept sharp and almost of the V-section, and is very deep. She has a very small wetted surface for her size, and the entire length of the boat has a sharp deadrise, which will take rough water without pounding or slowing the speed down. She also has generous beam, which will give her good stability (and room inside) without the use of hard or flat sections. Her fore-and-aft lines have been kept very long and easy, and her displacement and C. B. are so placed as to balance the weights of the boat. The displacement is well aft, to support the engine.

With the rabbet carried aft deep, with a drag, as shown, any bilge water will run aft and lie in the after part of the boat instead of swashing around in the living quarters and wetting blankets, cushions, etc., every time the boat rolls. Also, with the deep V-section





the bilge-water will stay on the center line of the bottom of the boat, where it can be pumped out much better than in a flatter floored boat.

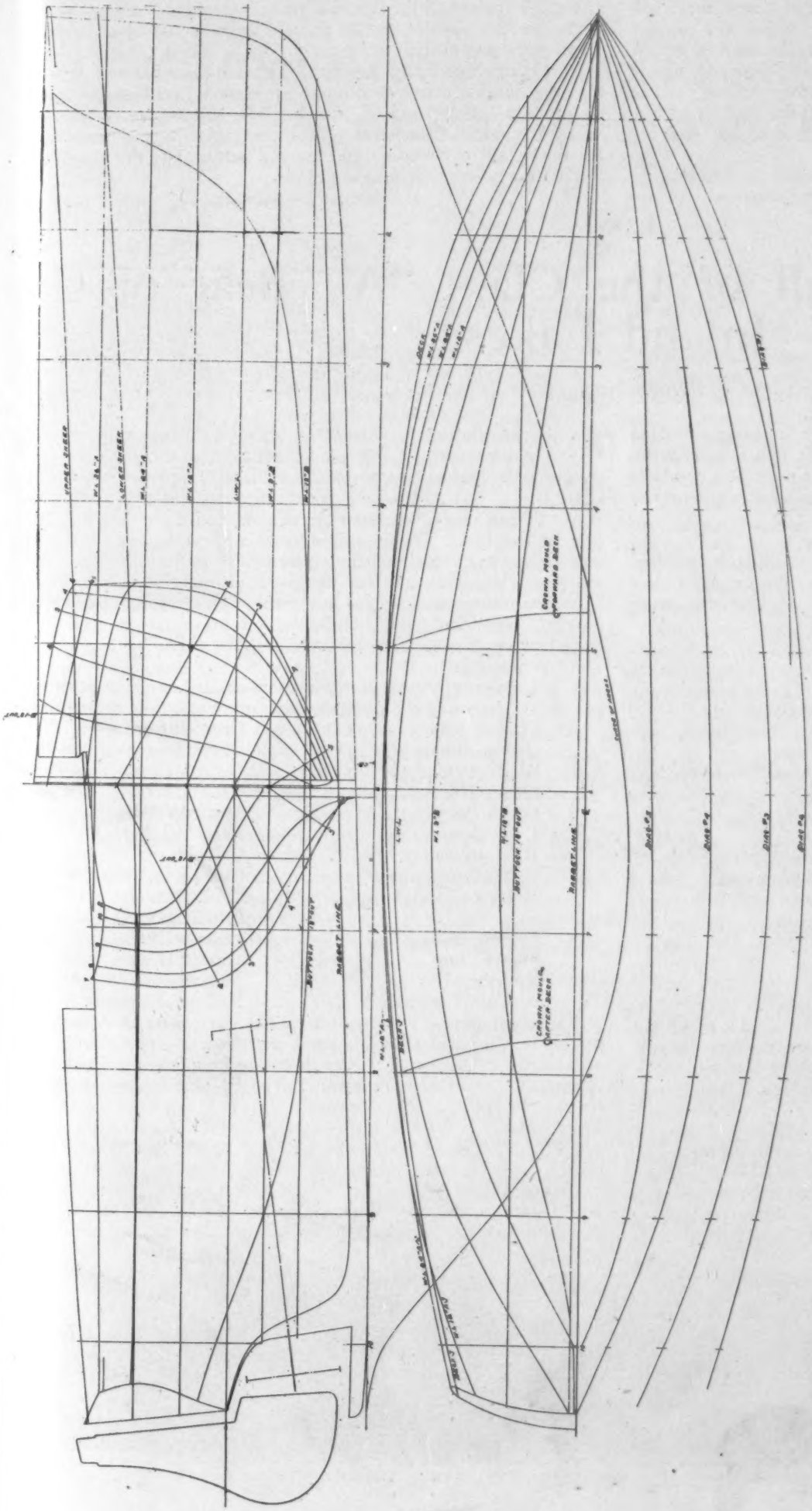
The mid sections have good deadrise and a nicely rounded, though fairly hard bilge, giving sufficient stability to carry the auxiliary rig and making a boat that will roll easily, with no jerky motions, while the after sections are deep and have been fined away sufficiently and given enough deadrise to produce the nice run and pleasing counters of a craft which will steer well in a following sea. These points, with the good freeboard, tumbled-home sides and easy lines, should produce a boat which can be driven easily through a head sea comparatively dry, and one that can run before a following or quartering sea without danger.

An outside rudder is shown, as it will steer the boat better than one under the counter, gives more room for the arrangement used, and is easier to repair if damaged. Bilge keels should be fitted and will check excessive rolling and also help to prevent leeway by doing duty as leeboards when the auxiliary sails are used.

This boat has a heavy hull, but is of easy form, and can be driven economically up to a speed of eight miles an hour with an engine developing about 14 brake-horsepower. It should be an engine of the slow-speed type of fairly heavy construction. The engine shown in the plans is a 14 horsepower, two-cylinder, 5½″ x 6″, four-cycle machine, which will turn a 24″ x 24″ propeller about 450 revolutions per minute and give a speed of eight miles per hour. If economy of fuel is any object, I recommend the four-cycle type, and if the price of gasolene keeps as high as at present, I think it might be advisable to use an engine which can be run on kerosene.

The next thing to think of is the general arrangement of the deck plan and exterior. Commencing forward is a crowned raised deck about 14 feet 9 inches long which will shed water readily. This deck is crowned 9½ inches in 8 feet 6 inches beam—not so much that it will be dangerous to walk upon.

Aft of this deck is a bridge deck about 21 inches wide, which will strengthen the boat and give extra cockpit and cabin space. The seats on the sides of cockpit are the deck built in; thus the actual cockpit is small, being about 3 feet 8 inches long by 5 feet wide, and is sunk about 18 inches deep, the floor being 9 inches above the L. W. L. Cockpit drains aft. In the floor of the cockpit is a brass watertight manhole, to give access to the lazarette. The bilge pump is on



the bridge deck, with a discharge pipe leading overboard in the bottom paint, but above the L. W. L.

Care has been taken to make all deck fittings strong and simple, so as not to be broken or damaged by boarding seas. All lights are opening round ports, and the skylight is of wood with glass deadlights set in and no large pieces of glass to smash. Ventilators are provided where they will do the most good, and the companionway doors are in slides to drop into grooves, as in fishing schooners. The door sills are 19 inches above the cockpit floor, so the cockpit would have to be full before any water could get into the boat, and, with all doors and slides closed, the whole space between cabin and engine room could be filled and practically no water would get below.

The outside of the hull should have a heavy oak, iron-bound guard running along the lower sheer to protect the hull from damage from docks, canal locks, etc. Anchors should be carried lashed to chocks on the forward deck ready for use and an auxiliary tiller provided in case of accident to steering gear. There is an especially strong towing bitt built into the construction of the boat so that she may be used for towing, if necessary.

So much for the deck and exterior arrangement. There are times when in a seaway with the little craft almost turning somersaults it is a disagreeable job for the most hardened enthusiast to tend stove, get out side lights or oil the engine, and the best sailors often succumb under these conditions, so I have tried to make all the working parts of the boat as handy as possible.

Starting aft, under the after raised deck is a good-sized storeroom for extra lines, oil cans, etc., and on the port side is a lantern locker lined with metal, with compartments for oil can, waste, lanterns, etc., thus keeping all oil and dirt out of the cabin. Forward of this is an engine room over 6 feet long. This is a *real* engine room, and there is plenty of room to get all around the motor.

Among the other advantages of having a separate engine room is that there will be no noise in the cabin when under way, so the watch below will be able to sleep. On the port side of this compartment is an extension transom, so that an extra hand may be slept in case of emergency. This room is well provided with racks and shelves for tools, batteries and engine supplies, cylinder oil tank, waste locker, etc. It is ventilated by an ejector ventilator, which has a canvas pipe which leads to the lowest part of the bilge and sucks all gas and bad air out of the boat.

Next forward are the fuel tanks, four in number, 14 inches diameter by 42 inches long, of 28 gallons capacity each, giving a cruising radius of about 400 miles on one filling. Two of these tanks

are under the cockpit seats and feed by gravity, and there are two reserve tanks under the cockpit floor. When the gravity tanks are empty the contents of the reserve tanks may be transferred to the gravity tanks; or the tanks may be equipped with air pressure to force the fuel to the engine when they get low; or the engine may be equipped with a pump to pump the fuel to engine. Spark, throttle and reverse controls should lead to the steering wheel.

Between the reserve tanks is a lazarette, which could be fitted for storage of coal, rope, anchors, etc., which dampness will not affect. Forward of this are the living quarters, which are similar to the 30-foot yawl published in the December issue, an arrangement very hard to improve upon for a small boat.

In the steerage, after descending the companion, one sees, on the port hand, a convenient place for cooking, so that the single-hander can keep an eye on this domestic department while he is still at the helm. Furthermore, this steerage is a convenient place for taking off one's oilers and leaving behind any dampness that might otherwise come into the cabin.

(Continued on page 242.)

The Rise and Fall of the Class "A" Boat of the Inland Lakes

A Pessimistic Observation by Byron Boyden, of the Lake Geneva Yacht Club

[There is more excitement to the square inch in racing an inland lake scow than in almost any other type of craft, and it is with the hope of reviving interest in the A Class that we print Mr. Boyden's pessimistic growl. Let's hear from some of the accused as to what the trouble is.—EDITOR.]

IN 1897 there was formed an association of yacht clubs in Minnesota, Wisconsin and Illinois known as the Inland Lakes Yachting Association, and consisting of the following yacht clubs:

Chicago Yacht Club (Chicago).
Columbia Yacht Club (Chicago).
Columbia Yacht Club (Fox Lake).
Delavan Lake Yacht Club (Wisconsin).
Lake Butte des Morts Yacht Club (Wisconsin).
Lake Geneva Country Club (Wisconsin).
Lake Geneva Yacht Club (Wisconsin).
Lake Side Yacht Club (Minnesota).
Menasha Yacht Club (Wisconsin).
Mendota Yacht Club (Wisconsin).
Minnetonka Yacht Club (Minnesota).
Neenah-Nodaway Yacht Club (Wisconsin).
Oconomowoc Lake Club (Wisconsin).
Oconomowoc Yacht Club (Wisconsin).
Oshkosh Yacht Club (Wisconsin).
Pine Lake Yacht Club (Wisconsin).
Pistakee Yacht Club (Illinois).
White Bear Yacht Club (Minnesota).

For some years the small boat sailing game was one of the greatest of summer sports, and the type of boat adopted by the association reached its highest development under the best builders of the West. The boats in use are built under a scantling rule and vary but little on each lake. The type is that of a scow, with double bilge-boards and double rudders, with a 38-foot overall limit for Class A and 32 feet for Class B. The limit of sail area allowed for Class A is 500 square feet and for Class B 350 square feet. No dead ballast is allowed, and the crew weight is limited to 750 pounds for Class A and 600 pounds for Class B.

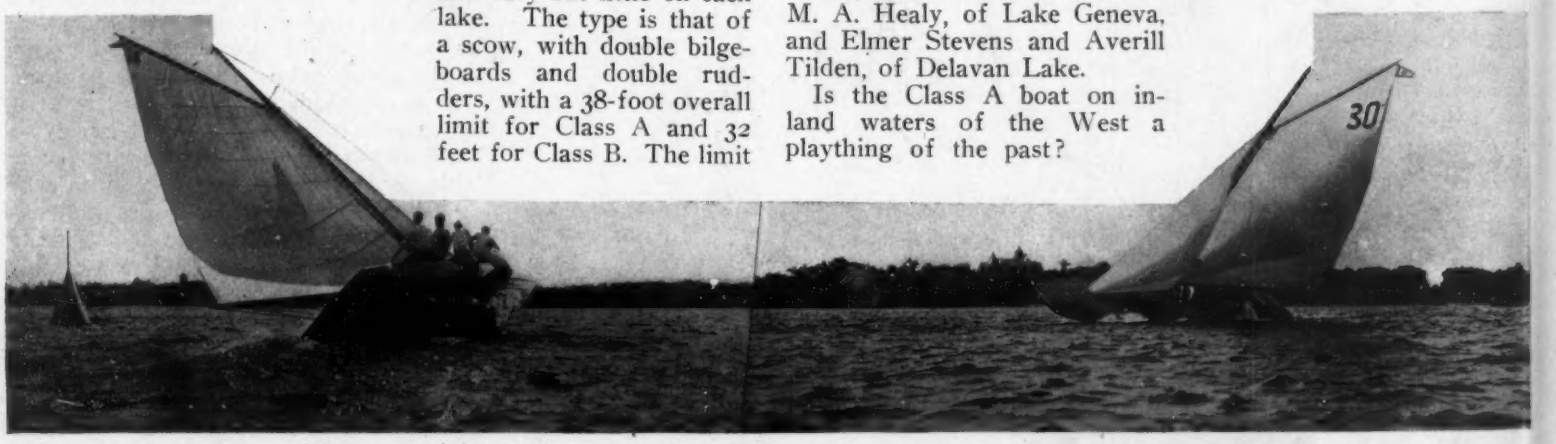
For fifteen years these boats have been racing, first on one lake, then on another. The first eight years a great deal of enthusiasm was shown, and nearly all the clubs in the association were represented at the meets; but for the last seven years the interest has been dwindling until in the last meet on Lake Winnebago, last August, only five yacht clubs sent representatives (counting the Oshkosh Yacht Club as including the other yacht clubs on Lake Winnebago).

The following one-time enthusiastic sailors have, from all appearances, forsaken the game, leaving no one to take their places:

Fred Pabst.	Fred Clifford.
George Bullen.	David Stearns.
W. N. Pelouze.	George Braun.
Henry Hertz.	Nick Morris.
H. H. Porter, Jr.	Mark Walton.
J. K. Dering.	Fred Wacker.
B. F. Johnston.	J. K. Hunt.
F. H. Gansbergen.	Charles K. Offield.
Jefferson Hodgkins.	C. A. Barnum.
John Kohl.	Frank Hansell.
Frank Graham.	James Gardner.
Fred Luhm.	Harold Hough.
Andrew McAnsh.	Benjamin Carpenter.
William Lorimer.	Kellogg Fairbank.

The small coterie who are left in the game may be counted up almost on the fingers on one hand, as follows: The White Bear and Oshkosh yachtsmen (may they live long and prosper!); the Armour boys, of Oconomowoc Lake; E. B. Savage, of Minnetonka; Dr. O. L. Schmidt and M. A. Healy, of Lake Geneva, and Elmer Stevens and Averill Tilden, of Delavan Lake.

Is the Class A boat on inland waters of the West a plaything of the past?



"MORE EXCITEMENT TO THE SQUARE INCH IN RACING AN INLAND LAKE SCOW THAN IN ALMOST ANY OTHER TYPE OF CRAFT"

The Inter-Club Yacht Racing Association of Massachusetts in 1912

By HOLLIS BURGESS

PART II

The account of the first half of the Inter-Club racing season of 1912 will be found in the February issue of YACHTING.—Editor.

VANKEN, THE 18-FOOTER OWNED BY R. E. AND W. WINSLOW, MADE A FINE SHOWING IN THE BERMUDA CUP RACE

ON August 1, 2 and 3 the Boston Yacht Club held its midsummer series at Hull. Inter-Club classes were given only on Saturday, the 3d, but seventy-one boats raced on this day. Nutmeg scored a brilliant victory in Class A, with Clorinda second and Meemer third. In Class B, Lethe and Barracouta had a hot battle. Barracouta fouled Lethe at the start, but the latter finally pulled ahead and led over most of the course. On the last leg, however, Barracouta managed to get by Lethe, and won the race by a small margin. Eleanor won in Class C. Wawenock defeated the new Maritza II, and Sinbad won in Class H. Other Inter-Club winners were: Clara, in Class D; Scaler, in Class I, and Terror II, in the dory class.

At the conclusion of the race all the boats made across the Bay to Nahant, as on the following day the Annual Inter-Club Squadron Run, from Bass Point to Marblehead, under the auspices of the Lynn Yacht Club, was to take place. This event is always looked forward to with the greatest interest by Inter-Club yachtsmen, and handsome trophies are given to the winners in the run.

Eighty-four boats made their appearance early Sunday morning for the contest. Besides this event, boats from all over the coast heading for Marblehead to participate in the Corinthian Yacht Club Midsummer Series caused the waters of Massachusetts Bay to be dotted with hundreds of sails. The pessimistic croakers who had predicted that sailboat racing was on the decline were forced to take a back seat this day.

The 14-mile run was covered in fast time. Nutmeg won in Class A on corrected time, though Meemer finished first by a good margin. Wanderer IV made her best showing of the season and secured third place over Virginia, Flirt, Chewink II and Marie. Barracouta won in Class B, with Quakeress second. H. Lindsay sped over the course in spectacular style and made the best actual time of the day. She was an easy winner in Class C.

The catboat Iris, with Frank F. Crane, veteran of twenty-two "Marblehead Weeks," at the helm, scored a splendid win in Class D; Wawenock won in Class S; Sinbad in Class H; Terror II in Class X, and Marwindor in the Hingham One-Design Class. Several other special classes also crossed the finish line off Marblehead Rock. All day long a steady stream of boats kept pouring into Marblehead, and that night the rockbound harbor was filled to overflowing with an immense fleet of wind-driven craft.

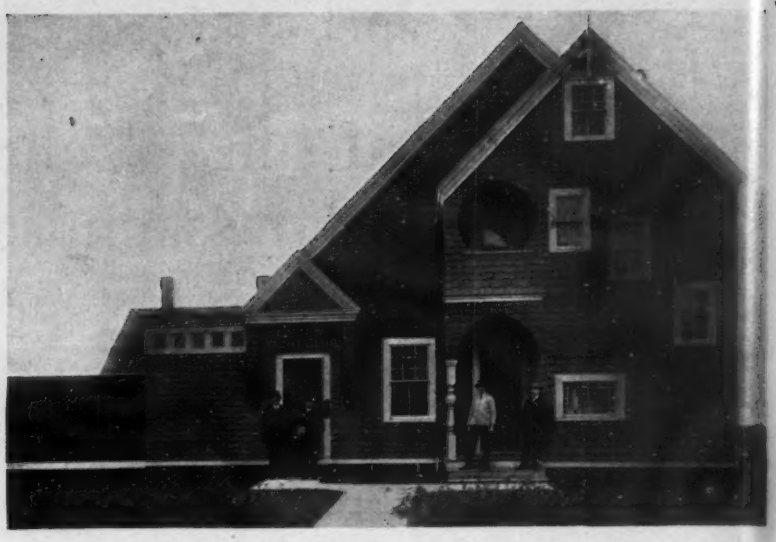
Next day Midsummer Race Week was ushered in with a special open race given by the Eastern Yacht Club. About 50 boats started. As usual, the Eastern Yacht Club offered valuable prizes and ran the event off with its accustomed accuracy and good judgment. The wind was rather fluky, starting with a moderate southeaster, which shifted to northwest at the finish.

Nutmeg won in Class A, with Marie L, under the new ownership of A. W. Finlay, of the Quincy Yacht Club, second, and Meemer third. Lethe won in Class B, with Barracouta second and Sintram third. Dartwell won in Class D, followed by Dolly III. In the 18-foot class Dorothy and Arrow, from Narraganset Bay, won first and third prizes, with Jane, a Gloucester boat, second. In the sonder class Demon won, with Beatrice second and Cima third. Harpoon, the champion sonder boat, was only able to finish fifth. Other winners were: Amoret, in Class P; Atalanta, in the Marblehead One-Design Class, and Elizabeth, in Class Q.

August 6 the Boston Yacht Club held the second event of Race Week. One hundred and five boats started, and a moderate southerly breeze furnished good sport. Meemer crossed the line first in Class A, but Nutmeg defeated her on corrected time. Marie L took third prize. Barracouta turned the tables on Lethe in Class B, scoring a clean-cut victory. Winona won third prize. Eleanor won in Class B, with Violet second. Other winners were: Thordis, Class H; Dartwell, Class D; Louise, Class I; Maritza II, Class S; Amoret, Class P; Norma II, First Special Rating Class; Harpoon, Sonder Class; Terror II, Class X; Chevy Chase, Second Special Rating Class; Daffydil, Marblehead 17-footers; Swallow, 15-footers, Beta, Hull 15-footers; Picayune, Corinth-

THE 18-FOOTERS IN A FRESH BREEZE

COTTAGE PARK YACHT CLUB, WINTHROP, MASS., IS ONE OF THE YOUNGEST AND MOST ENTHUSIASTIC CLUBS IN THE ASSOCIATION



LYNN YACHT CLUB. THE ANNUAL RACE FROM NAHANT TO MARBLEHEAD GIVEN BY THIS CLUB IS ONE OF THE CHIEF EVENTS OF THE SEASON

ian Yacht Club 15-footers; Merlin, Duxbury 15-footers, and Elizabeth, Special Handicap Class.

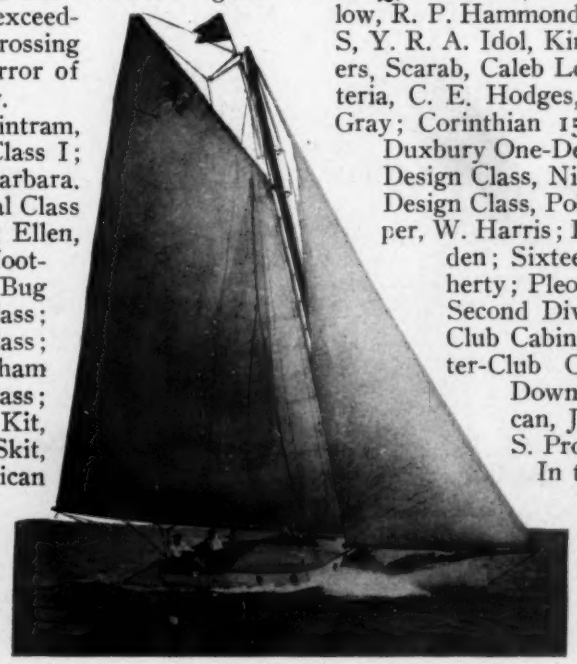
In the morning the first race for the Inter-State 18-foot Championship between teams of Massachusetts and Rhode Island boats was sailed in a fluky breeze. The Massachusetts boats—Cheroot, Louise and Moslem II—finished first, third and fourth, respectively, while the Rhode Island boats had to be content with second, fifth and sixth. In the afternoon race the three Providence boats sailed against two Duxbury 18-footers, which they had no trouble in defeating. In the regular 18-foot class thirteen boats participated, Scaler taking second place to Louise.

Next day the Corinthian Yacht Club opened its Midsummer Series with the biggest regatta held in American waters in recent years. The magnificent total of 184 boats crossed the starting line. Every yacht club on Massachusetts Bay was represented, hundreds of spectators lined the cliffs, and the constant booming of the starting guns in the 30 classes echoed from shore to shore. It is estimated that the crews of the racers totaled over a thousand men, and the fact was clearly impressed on the onlookers that sailboat racing is once more on the increase after several years of decline. A steady southwest breeze added to the enjoyment of the occasion, and spectacular finishes kept the judges constantly on the alert. The manner in which Chairman William L. Carlton and his board of judges handled this immense regatta called forth the highest praise. It is an exceedingly difficult task to time so many boats crossing the line in quick succession, but not an error of any kind was made in the entire summary.

Winners were: Nutmeg, Class A; Sintram, Class B; Eleanor, Class C; Moslem II, Class I; Dartwell, Class D; Maritza II, Class S; Barbara, Class X; Sumaki, Class R; Creeper, Special Class S; Cricket, Class M; Sayonara, Class P; Ellen, Sonder Class; Swallow, Annisquam 15-footers; Elizabeth, Class Q; Grayling, Nahant Bug Class; Asteria, Manchester One-Design Class; Atalanta, Marblehead One-Design Class; Marion III, Class H; Pollywog, Hingham One-Design Class; Imp, Alpha Dory Class; Half Moon, Corinthian 15-foot Class; Kit, Duxbury One-Design Class, and Flash, Skit, Streak, Rion, Beachcomber, Anabel, Mohican and Premier in special classes.

Next day 178 starters appeared. A fresh breeze and heavy swell prevented several boats from starting; otherwise 200 boats would probably have raced.

The following day a strong southeaster kept down the number of entries, but 168 boats finished, some of them the worse for the battering of steep seas and vicious puffs. The boats sped over the course in fast time. The feature of this regatta was the appearance of 15 starters in the 18-foot class and the sensational victories of Nutmeg, Sayonara, Ellen and Lethe.



SINBAD, CHAMPION OF CLASS H FOR 1912. RALPH B. PACKARD, SQUANTUM YACHT CLUB, OWNER

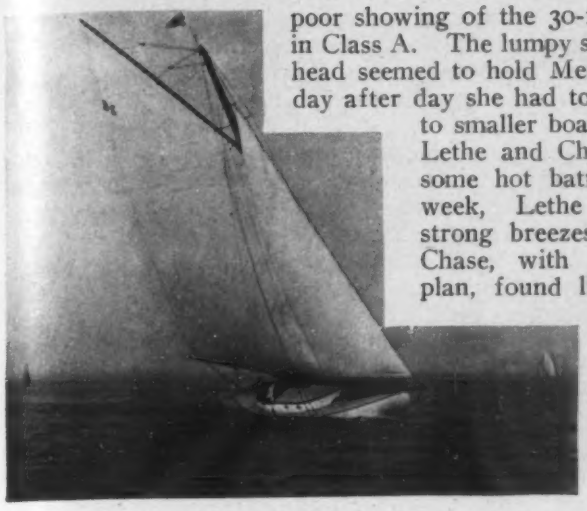
Saturday the final event of Race Week was held. One hundred and sixty-seven boats participated in the afternoon race, while in the morning a sail-off for several Midsummer Series trophies in various classes was held. Accidents marred the afternoon event somewhat. The sloop Clorinda, in Class A, was dismasted in a collision with a large sloop and one of her crew injured by the falling wreckage. Maritza II capsized, but was quickly righted and towed to port. The catboat Mudjekeewis was damaged in a mix-up with the Class C sloop H. Lindsay, and Marion III suffered a breakdown.

In the evening a banquet and wind-up celebration was held at the handsome club-house of the Corinthian Yacht Club. The Midsummer Series cups were awarded as follows:

Class A, Nutmeg, Allen C. Jones; Class B, Chevy Chase, Walter Kelley; Class C, Eleanor, W. L. Jefferson; Class D, Dartwell, I. M. Whittemore; Class H, Dorsyl, S. L. Gookin; Class I, Moslem II, H. N. Bloomfield; Class S, Maritza II, C. H. Porter; Class X, Barbara, J. J. Blaney; Class M, Edjako, G. E. Raymond; Class P, Sayonara, V. F. West; Sonder Class, Ellen, C. P. Curtis, Jr.; Class Q, Elizabeth, W. A. Rowe; Annisquam 15-footers, Swallow, R. P. Hammond; Class R, Sumaki, W. J. Harcourt; Class S, Y. R. A. Idol, Kimball and Van Pelt; Marblehead 17-footers, Scarab, Caleb Loring; Manchester One-Design Class, Asteria, C. E. Hodges, Jr.; Nahant Bug Class, Grayling, F. J. Gray; Corinthian 15-footers, Half Moon, D. R. DeLoreia; Duxbury One-Design Class, Kit, E. Ellison, Jr.; Hull One-Design Class, Nicknack II, E. B. Holmes; Hingham One-Design Class, Pollywog, J. J. Dyer; Alpha Dory Class, Hyper, W. Harris; Beachcomber Dory Class, Streak, W. Bragden; Sixteen-foot Handicap, Chekaka, W. O. Doherty; Pleon First Division, Coot, S. O'Hara; Pleon Second Division, Snail III, Margaret Wood; Inter-Club Cabin Power Boats, Mascot, Fred Borden; Inter-Club Open Power Boats, Josephine, W. J. Downs; Open and Cabin Special Class, Mohican, J. A. Burnham; Speed Boat Class, Kid, J. S. Proctor.

In the Inter-State 18-footer Series the Massachusetts boats easily beat out their Rhode Island competitors, the Cheroot making an especially fine record.

During the four days' racing of the Corinthian Yacht Club regattas a grand total of 734 boats in 30 classes crossed the starting line. One of the most surprising features of the racing was Nutmeg's six successive victories and the



QUAKERESS, J. W. DAMMERALL, JR., OWNER. CLASS B CHAMPION 1912

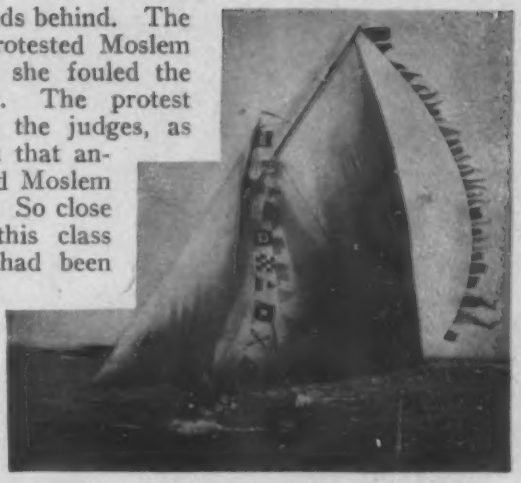
poor showing of the 30-footer Meemer, in Class A. The lumpy seas off Marblehead seemed to hold Meemer back, and day after day she had to dip her colors to smaller boats. In Class B Lethe and Chevy Chase had some hot battles during the week, Lethe excelling in strong breezes, while Chevy Chase, with her large sail plan, found light breezes to her liking. All in all, the Marblehead Midsummer Week of 1912 may be set down as the most successful series of races ever held up to the present in this or any other country.

August 17 the Cottage Park Yacht Club regatta took place off Winthrop. Nutmeg won in Class A, with Virginia second and Meemer third. In Class B, Olivia, owned by the writer, Lethe having been purchased by J. J. Dyer, of the Hingham Yacht Club, at the conclusion of Marblehead Race Week, made her first appearance, and won first prize by a wide margin over Sintram, Quakeress and Winona. Olivia, formerly the Barracouta, is a centerboard boat, with wide beam and big sail plan, and she romped around the course in fast time. H. Lindsay won a clean-cut victory in Class C. Three Herreshoff Bar Harbor 30-footers—Leenane, Cricket and Edjako—sailed an exciting race, finishing in that order. Other winners were: Clara, Class D; Sinbad, Class H; Moslem II, Class I; Zoe, Class S, and Barbara, Class X.

August 24 the Lynn Yacht Club held a most interesting and exciting regatta. The weather conditions were perfect—a moderate southwesterly breeze and smooth sea. In Class A, Meemer for the first time defeated Nutmeg, crossing the line six minutes ahead on actual time and winning by over a minute on corrected time.

Olivia won by over five minutes in Class B. Eleanor captured first prize in Class C; Maritza II, in Class S; Barbara, in Class X; Clara, in Class D; Marion III, in Class H, and Edjako, in the Bar Harbor 30-footers. In Class P a most sensational finish was the feature of the day's racing. Amoret, Italia and Sayonara fought neck and neck all over the course. As they came to the line all three boats appeared as one, so close were they together. Just as they crossed the line Amoret shot ahead of her competitors, winning the race by the slender margin of one second, while Italia and Sayonara scored a dead heat for second place. As the three Class P boats finished a most unusual incident occurred. Zoe, a Class S boat, was finishing at the time and was squeezed in between two of the P boats. She was caught by them and swept along against the will of her crew for a distance of several hundred yards.

In Class I Scaler won first prize, Cheroot second, with Moslem II third, only two seconds behind. The owner of Louise protested Moslem II on the ground that she fouled the mark at the finish. The protest was not allowed by the judges, as it was clearly proven that another boat had forced Moslem II on to the mark. So close was the racing in this class that if this protest had been allowed Moslem II would have been thrown out of the running for the season championship.



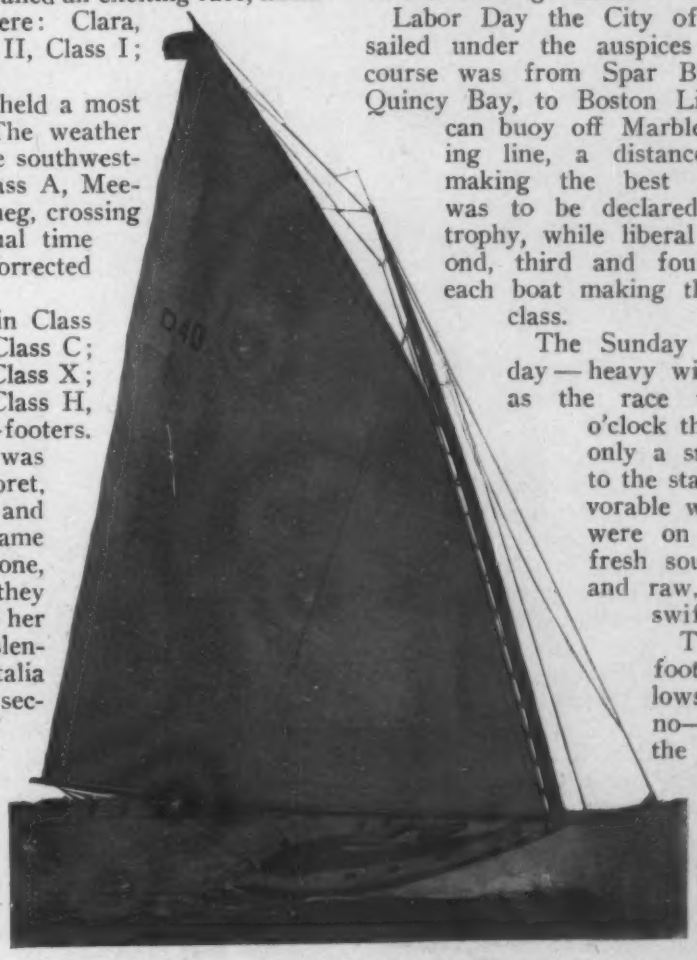
OLIVIA, HOLLIS BURGESS, OWNER, WON EVERY RACE IN CLASS B IN WHICH SHE PARTICIPATED

August 31 the Wollaston Yacht Club held an interesting regatta, with fifty-eight starters. Light airs, shifting from east to northeast, then to southeast, baffled the crews of the competing boats and kept everyone on the alert for favorable flukes. The fastest time over the course was made by H. Lindsay, the winner in Class C. The next best time was made by Olivia, which won in Class B by a good margin. Meemer won in Class A, Nutmeg not entering, as she had an overwhelming lead for the championship. In Class D the old Mudjekeewis won a decisive victory over Dolly. Class I was represented by nine entries. Louise scored a handy victory, with Moslem II 22 seconds behind her and the rest of the fleet lagging. Other winners were: Barbara, Class X; Thordis, Class H; Wawenock, Class S, and Pollywog, Hingham One-Design Class.

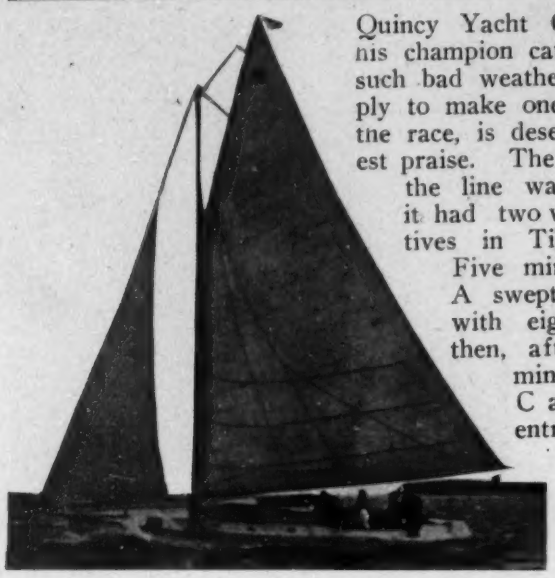
Labor Day the City of Boston Bermuda Cup Race was sailed under the auspices of the Quincy Yacht Club. The course was from Spar Buoy Number Four, off Nut Island, Quincy Bay, to Boston Lightship, thence to Volunteer Rock can buoy off Marblehead Rock and back to the starting line, a distance of thirty-two miles. The boat making the best corrected time over the course was to be declared the winner of the $500 Bermuda trophy, while liberal cash prizes were offered for second, third and fourth boats, as well as a prize to each boat making the best corrected time in her own class.

The Sunday before the race was a miserable day — heavy wind with rain and dense fog — and as the race was scheduled to start at nine o'clock the next morning, it was feared that only a small number of boats would come to the starting line. In spite of the unfavorable weather, however, twenty-three boats were on hand early Monday morning. A fresh southeasterly wind was blowing, cold and raw, with threatening clouds scudding swiftly overhead.

The first boats to start were the 18-footers. Only two of these little fellows appeared—the Vanken and Domino—the rest of the class not liking the looks of the weather. Class B was the next across, with four entries — Olivia, Winona, Pirate and Gleaner. Five minutes later Class D started, with two entries, Dartwell and Wanderer. It was generally predicted that catboats had no chance in this long race, and the action of Commodore Ira M. Whittemore, of the



DARTWELL, CHAMPION CATBOAT OF 1912. COMMODORE I. M. WHITTEMORE, OWNER



MARION III, A CLASS H RACER. HER OWNER, RALPH C. GOUDEY, OF THE WINTHROP YACHT CLUB, IS AN ENTHUSIASTIC INTER-CLUB YACHTSMAN

Quincy Yacht Club, in starting his champion catboat Dartwell in such bad weather conditions, simply to make one more entry for the race, is deserving of the highest praise. The next class over the line was Class H, and it had two worthy representatives in Tiger and Dorsyl. Five minutes later Class A swept across the line with eight starters, and then, after another five-minute interval, Class C appeared with six entries.

Making tack after tack in quick succession, the fleet made its way down the narrow channel. Off Hull Gut the Olivia was leading the procession, though the Class A boats were steadily drawing up on her. A strong flood tide was rushing in against the racers, and all the boats, except Meemer, hugged the Nantasket shore close, to dodge the unfavorable currents. It was a miracle that none of the deep-keel boats fetched up on the rocks, so near did they come to shoal water. Olivia struck her centerboard three times off the Nantasket shore, but it was quickly pulled up each time and occasioned no delay.

As the boats came out by Boston Light they encountered a terrific sea. Heavy storms off shore and constant southerly winds had caused a heavy ground swell, and, on top of that, vicious puffs were now tearing up the surface of the waters. Whoever has beat down the channel by Boston Light with a head tide and a fresh breeze can readily understand what a hammering the small racing boats had to endure that Labor Day morning. Marie L. and Norma II could not stand it, and were obliged to withdraw, with damaged rigging. Pirate, Domino, Gleaner and Wanderer also gave up the battle.

Olivia held her lead until well by Boston Light, but was finally overtaken by the larger and more powerful Class A boats. Meemer, the beamy 30-footer, made poor work of it on the windward leg. Nutmeg and Virginia sailed fast, and though they both overfetched the Lightship considerably, Virginia had the proud distinction of rounding it first, two minutes ahead of Nutmeg. Next came the 25-footer Flirt, followed by Meemer, with Olivia close at her heels. Olivia had made a long tack out in the bay to the northward after passing Boston Light, in order to keep the seas on her beam as much as possible, and gained considerably thereby. For a wide centerboard boat, less than 21 feet waterline, Olivia made a good showing in the severe weather when she rounded the lightship in fifth place.

The 18-footer Vanken, owned by Ralph E. and Wadsworth Winslow, of the Quincy Yacht Club, sailed splendidly on this windward leg, and the pluck of her crew in keeping the little craft hammering away at the angry seas was heartily applauded.

The revenue cutter Gresham, through the courtesy of the Treasury Department, had been placed at the disposal of the Inter-Club officials and the Quincy Yacht Club regatta committee, and hovered near the racers ready to lend assistance if necessary. It was a picturesque sight to see the big cutter steaming slowly along, pitching and rolling in the heavy seas, convoying the sailboats like a hen with its brood of chickens.

After rounding Boston Lightship the next leg was a reach to Volunteer Rock can buoy. The wind began to drop rapidly now, with the result that the fleet became more and more scattered. The leading boats carried the breeze with them, while the boats astern lagged further and further behind. It was rough going in the fading wind, with booms slatting from side to side in the choppy seas. Nutmeg, with her big sails, soon passed Virginia and led the fleet at the turning buoy by a wide margin. The Class C boats had made a poor showing on the windward leg and were hull-down behind the Nutmeg at Volunteer Rock.

On the stretch home from Volunteer Rock the wind was on the quarter, and it was a long, tiresome sail in the dying breeze. The tide had turned, and the racers made slow time against it. Nutmeg slid along steadily, however, and crossed the finish line at 6:17, a good 21 minutes ahead of Meemer, the second boat to finish. Virginia took second prize easily, however, on corrected time. Nutmeg covered the 32-mile course in 4 h. 45 m. 19 s., exceedingly fast time considering the unfavorable weather. Flirt, Chewink II and Tiger followed the Virginia across the line. Then came the little Olivia, two hours ahead of her own class. H. Lindsay followed Olivia. The big sloop's showing to windward was a great disappointment, as, before the race, she was picked as one of the favorites for first place. Long after dark the tail-enders kept straggling in. Nutmeg's victory brought the Bermuda Cup into the custody of the Winthrop Yacht Club for a year, as she represented that club in the race.

On Labor Day, 1913, the Winthrop Yacht Club expects to have a big field of entries for the Bermuda Cup Race, and intends to make this a feature of the coming season. Considering the bad weather, the Quincy Yacht Club's Bermuda Cup race was a great success, and all those that took part in it appreciated the painstaking efforts of the club's officials.

September 7 the Quincy Yacht Club held the last Inter-Club regatta of the season, with 43 starters. This proved to be one of the most spectacular and exciting events of the year. The starting line was not placed at the proper angle for the direction of the southerly wind which prevailed, too much advantage being given for a start at the weather end of the line. As a result, all the boats came for the weather end of the line and crowding was inevitable. In Class A, Flirt started ahead of the gun, due some-

HOME OF THE WINTHROP YACHT CLUB. THIS CLUB WILL HOLD THE CITY OF BOSTON BERMUDA CUP RACE NEXT LABOR DAY AND HAS PROMISED TO MAKE IT ONE OF THE BIG EVENTS OF THE SEASON

what to being forced across by the rest of her class. The judges hailed her to come back and start again, but her crew did not hear the warning and kept straight on. Meemer was next across, coming perilously near beating the gun. Nutmeg did not race, her crew being content to rest on their laurels. The breeze freshened during the race, and the powerful Meemer came home an easy winner, with Virginia second. Chewink II finished third, followed by Mignon and Marie L. Flirt was disqualified for starting too soon, and Areyto had to withdraw.

There was more excitement in Class B. A few seconds before the start Olivia was heading for the line on the starboard tack, when Winona, coming up to leeward of her, forced her to luff to avoid a collision. In spite of hails for room, Winona refused to give way, and Olivia was heading at full speed directly towards the committee launch. Quakeress was bearing down on Olivia's weather and she was caught in a bad pocket. Olivia luffed by the judges' boat just enough to escape hitting her head-on and struck the Quakeress a glancing blow on her side. Oilvia's main boom swung across the committee boat in a twinkling, breaking off the judges' flagstaff and just grazing the heads of the judges, who promptly ducked to save their skulls. As a result of this mishap Olivia was obliged to tack back to the starting line, and went across nearly two minutes after the rest of her class. She sailed like a witch, however, on the first leg of the course and soon overhauled and passed Quakeress, Sintram and Pirate and closed up on Chevy Chase and Winona, the two leaders.

On the beat to windward Chevy Chase and Olivia had it nip and tuck, but the former managed to get a slight lead. On the next leg—a reach—Olivia closed up on Chevy Chase, when the latter began to luff to prevent Olivia blanketing her, and both boats drew in near shore. Chevy Chase was a keel boat, and her crew were taking a desperate chance in luffing so near the shore. Just as Olivia crept up on Chevy Chase's quarter the latter hit a rock with a loud bang. So hard did she strike that her bow plunged under water, while her stern came up high and dry. As she struck she swung around in the direction of the shore, and Olivia was forced to luff sharply to swing by her. So near shore was Olivia driven as a result of this that, in spite of her light draft, she also fetched up on a rock; and there both boats hung, with the rest of the fleet coming up rapidly. The crews on both boats worked hard to get their craft off the rocks, and, with the aid of a flood tide, Chevy Chase, which was in deeper water, floated off in a few minutes.

Things looked dark for Olivia, as she was close to shore, but, by desperate efforts, her crew forced her off the rocks a few seconds after Chevy Chase was cleared. Quakeress had caught the two boats by this time, and the others were close behind. An exciting battle now took place, as the wind was increasing rapidly. The beat home was a hot one, but Olivia carried her sail splendidly and crossed the line a winner by more than two minutes over Chevy Chase. Quakeress secured third prize. Winona was disqualified by the judges for crowding Olivia at the start and also for crossing the line too soon. This made Olivia's fifth consecutive victory out of the five races she had sailed in, and there is little doubt but that she would have won the championship in Class B if she had sailed in enough races. In Class C, Violet and Eleanor secured a big lead at the start over their formidable competitor, H. Lindsay, as the latter was late in getting down from Boston. In spite of this big handicap, the old sloop developed great speed in the increasing breeze and succeeded in passing both her competitors, winning first prize in sensational fashion.

Class H made a fine showing, with nine starters. Thordis captured first prize, with Sinbad second. In Class D, Iris sailed a splendid race, beating out Dartwell by three seconds. Dolly and Busy Bee were both disabled. In Class S, while skimming over the course with her weather bilge board out of water, Wawenock, with a safe lead, carried away some of her rigging, and Maritza II took first prize.

That night the South Boston Yacht Club held its annual Cup Night, all the racing boats heading for South Boston immediately after the Quincy race. Yachtsmen from all over the Atlantic coast were present, and the coveted Inter-Club championship "cock of the walk" pennants for 1912 were awarded as shown in table below.

In the cabin launch class Gertrude scored the most points, with Beachcomber second, while in the open launch class Anabel won first, with Pegasus second.

In the 18-foot class, which is an organization of its own, though virtually one of the Inter-Club classes, Moslem II, owned by Harry N. Bloomfield, won the championship for the second successive year, with Ralph Hendrie's Cheroot close behind her on percentage.

In connection with this percentage for championship it must be remembered that the Inter-Club system of percentage is to give one point for starting, one point for finishing and one point for every competitor defeated, so that a boat which enters all the races, though she may be but an indifferent performer, can score a large percentage. This is a very good system, as it induces boats to race in every

(Continued on page 242.)

THE CITY OF BOSTON BERMUDA CUP, NOW A CHALLENGE TROPHY OF THE INTER-CLUB ASSOCIATION

	Points
CLASS A	
1—Nutmeg, Allen C. Jones	120
2—Virginia, Charles L. Joy	102
3—Meemer, John T. Cavanagh	80
CLASS B	
1—Quakeress, J. W. Damerall, Jr	92
2—Sintram, O. L. Brambach	87
3—Winona, Murphy Brothers	75
CLASS C	
1—Eleanor, W. L. Jefferson	56
2—H. Lindsay, Power and McCarthy	49
3—Violet, H. J. McKee	42
CLASS D	
1—Dartwell, I. M. Whittemore	97
2—Clara, H. W. Robbins	83
3—Iris, F. F. Crane	53
CLASS H	
1—Sinbad, Ralph Packard	81
2—Marion III, Ralph C. Goudey	60
3—Thordis, F. A. Bursler	59
CLASS S	
1—Maritza II, C. H. Porter	62
2—Wawenock, G. W. Sargent	55
3—Zoe, F. J. Stewart	35

THE UPS AND DOWNS OF OCEAN RACING

The Month in Yachting

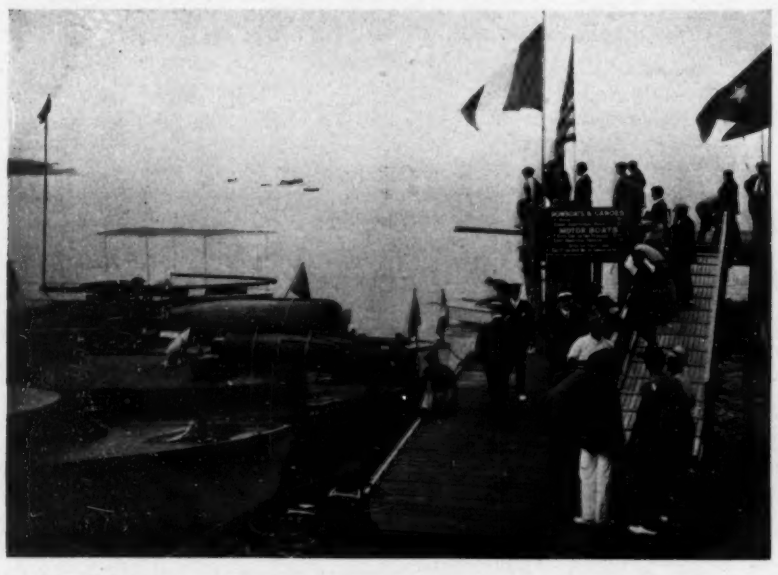
THE PROPOSED TRANS-ATLANTIC POWER BOAT RACE

SOME months ago the announcement was made of a proposed race for small power boats across the Atlantic from New York to Paris. Since that time there has been more or less desultory talk of such an event, but up to the present nothing very definite has been accomplished; and while there is still time to put it through for 1913, if not enough interest is shown to insure a sufficient number of entries the chances are that the race will go over to another year. This is, perhaps, a wise move, as, to insure success, such an event should not be started without adequate preparation on the part of the contestants.

There is no question that such a race could be brought to a successful conclusion and that enough power boat sailors could be found to man the boats. The principal difficulty, to our minds, is in securing a sufficient number of entries to make the race interesting as a sporting proposition. While there are some craft already built that could make the trip if properly refitted for the voyage, it is doubtful if anyone would undertake the race except in a boat especially built for the purpose; and experience has shown that it is a hard task to get owners to build boats for any particular event where they must be necessarily of such a type as to make them more or less undesirable for the legitimate uses to which a boat of that size could be put.

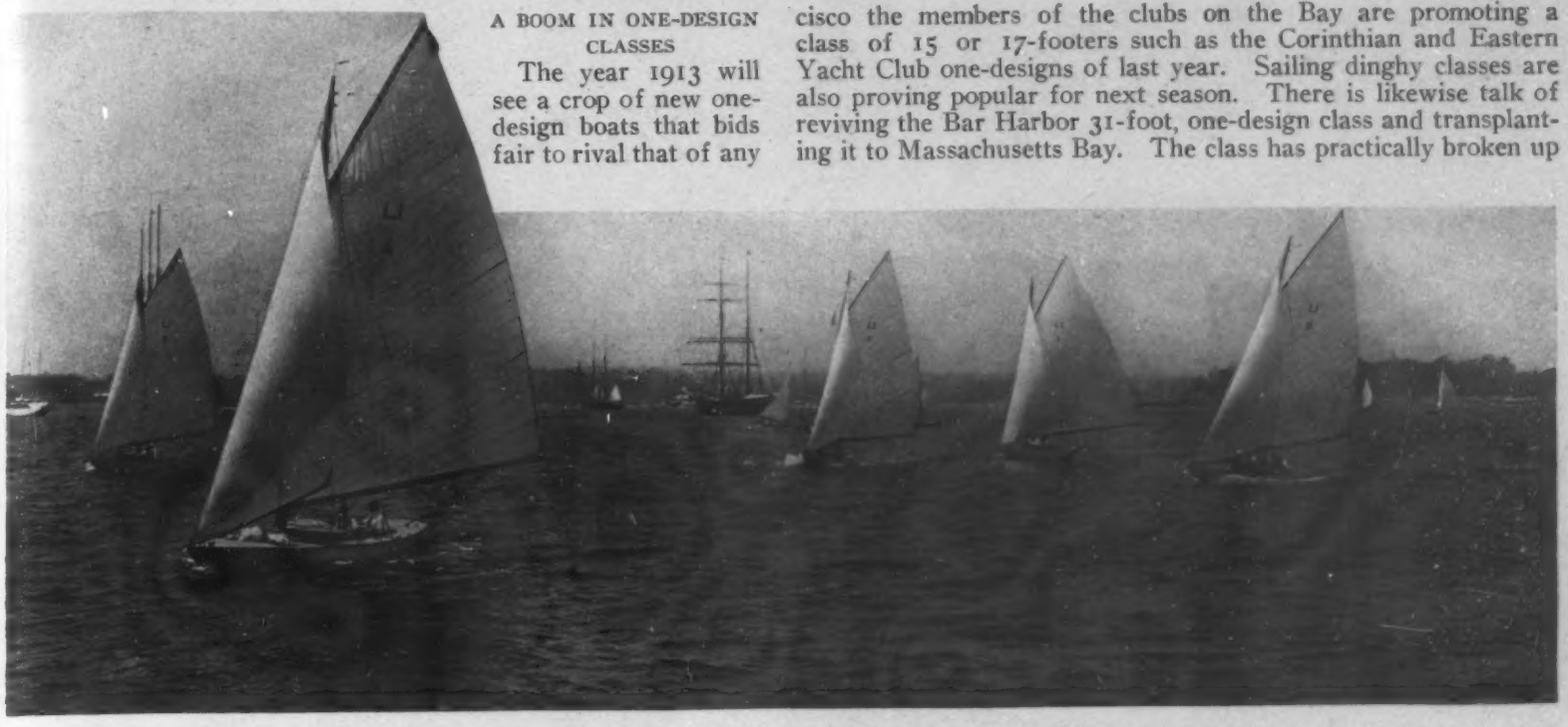
Power boat men, as a rule, have shown a strong disinclination for ocean racing in the last two years, and events with the tradition behind them of the Bermuda race, the Marblehead race and others have failed for lack of entries. As an advertising proposition, enough craft might be built by and powered by engine builders or manufacturers to make a race, but whether or not the uncertainty of the result would warrant the expense to most of them is a matter of debate. It would certainly be a sporting proposition for any owner that might want to build and navigate his own boat across, but even in this case much of the glory would go to the builders of the engine and boat which made the success of the trip possible.

On the whole, we would like to see the race put through, though we believe that the inducements are not sufficient to entice many to enter. We have no sympathy with the wail that has been set up by the press of the country, and by the English boating magazines, as to the dangers of such a race. With a properly designed and built boat, well handled, July North Atlantic weather should not offer any terrors, and the chances are that the fifteen to twenty-day grind would be safely accomplished, would prove of interest and also of value to the crews individually, and possibly to boat and engine design. These long-distance races have done much to raise the standard of seamanship among Corinthian sailors and have set a mark for engine makers and designers to strive for. They have produced better sailors, better boats and better engines. They have a distinct place in the sport if they are gone at in the right way and if every effort is made to assure a safe outcome. Whether or not they do as much for the sport as other types of racing on inland or sheltered waters that permit more men to reap the benefits is a question. Most men go into the sport for what they can get out of it. Certainly very few will get much out of a Western Ocean race except a good story in the press and magazines.



READY FOR THE START OF A MARBLEHEAD RACE. IT IS TO BE REGRETTED THAT INTEREST IN THESE EVENTS HAS FALLEN OFF

FLORENCE II, TYPE OF LONG-DISTANCE POWER BOAT RACER OF THE GREAT LAKES. WINNER OF MICHIGAN CITY RACE OF 1912

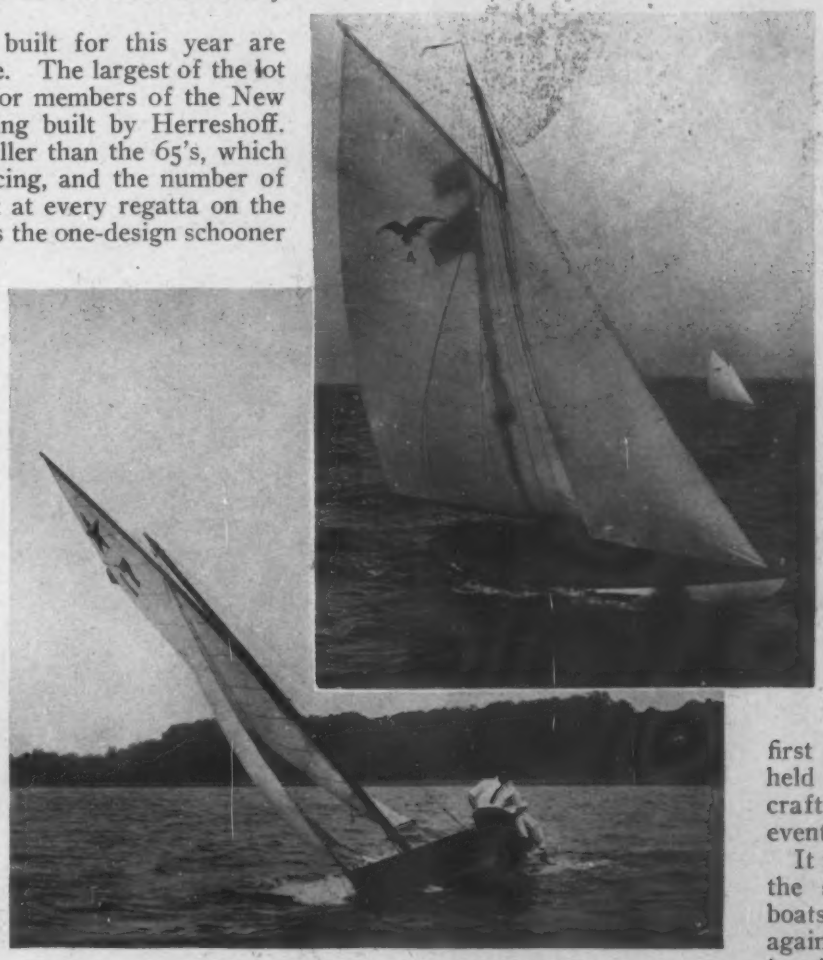


LARCHMONT INTER-CLUB CLASS. ONE OF THE MOST SUCCESSFUL ONE-DESIGN CLASSES EVER FORMED

A BOOM IN ONE-DESIGN CLASSES

The year 1913 will see a crop of new one-design boats that bids fair to rival that of any other year. This is a mighty encouraging sign, and those clubs should be considered lucky that have been able to successfully promote a fleet of boats of one design, as they probably do more for a club and for the owners of the boats than any other racing craft.

The classes that are being built for this year are widely different in size and type. The largest of the lot are the one-design 50-footers for members of the New York Yacht Club that are being built by Herreshoff. These boats are somewhat smaller than the 65's, which have made such interesting racing, and the number of them (nine) insures a big fleet at every regatta on the Sound. Next in point of size is the one-design schooner class of the Stamford Yacht Club, to which six or seven boats have been ordered. These are Cox & Stevens craft, 40 feet on the water and about 60 feet over all, and make handy boats for racing or cruising, which can be run with a small crew. The Stamford Yacht Club is also to have a little one-design class of 14-footers, which will give the younger members lots of fun with week-end racing. Down on Gravesend Bay a fleet of boats like the Bayside "Bird" class, 27 feet over all, is being formed. The Bayside Bird class was one of the most popular classes on the Sound last summer, and their adoption by the Gravesend Bay sailors is a tribute to Mr. William Gardner, the designer of the boats. Massachusetts Bay will see one or two "Mosquito" one-design classes, Buzzard's Bay will have a 17-foot class, while out at San Francisco the members of the clubs on the Bay are promoting a class of 15 or 17-footers such as the Corinthian and Eastern Yacht Club one-designs of last year. Sailing dinghy classes are also proving popular for next season. There is likewise talk of reviving the Bar Harbor 31-foot, one-design class and transplanting it to Massachusetts Bay. The class has practically broken up at Bar Harbor, the boats being scattered between Massachusetts and New York. If enough of them could be collected they would certainly make good racing



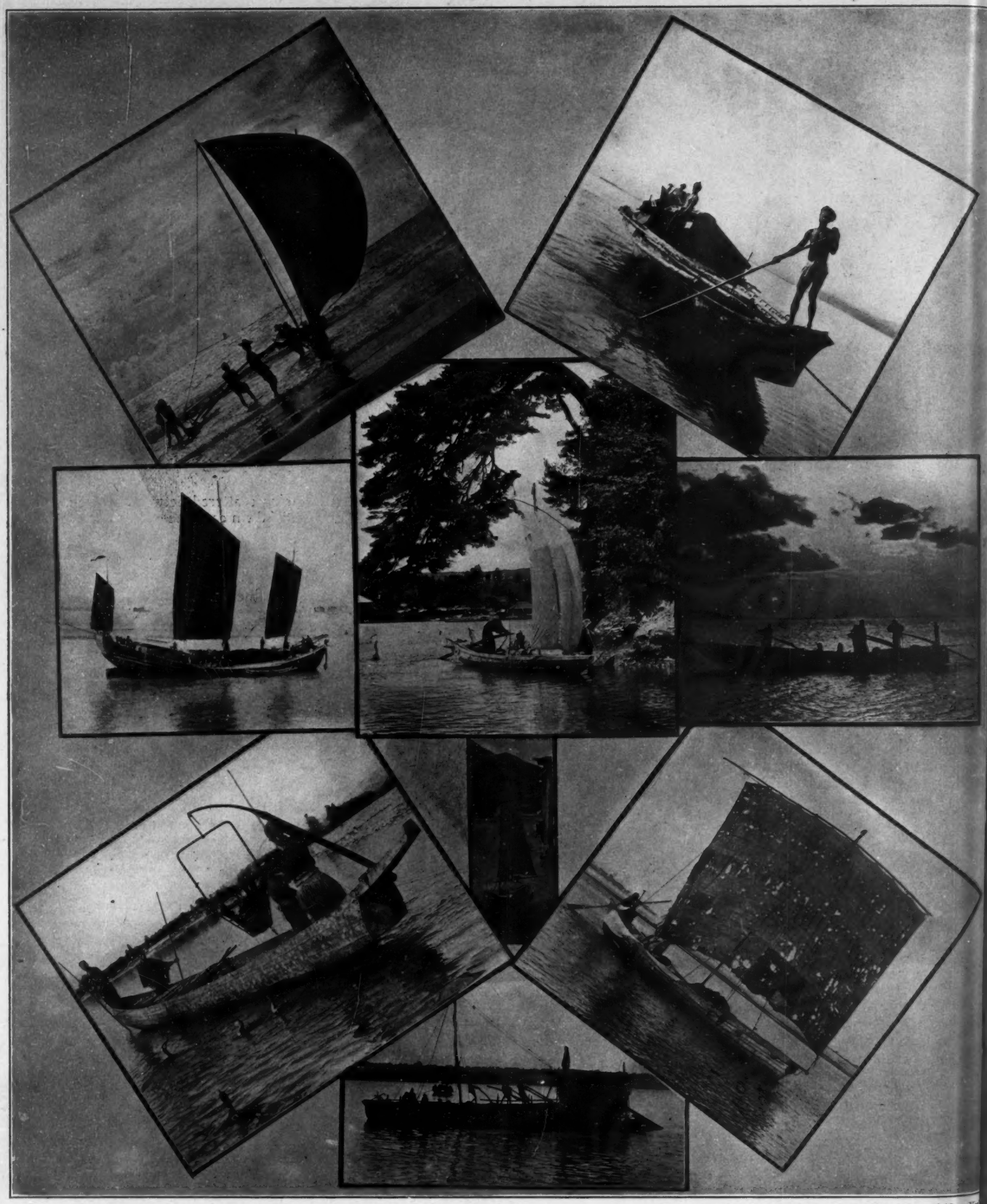
THE STAR AND BAYSIDE BIRD CLASSES. TYPES OF SMALL ONE-DESIGN CLASSES THAT HAVE BROUGHT MANY MEN INTO THE RACING GAME

INTER-LAKE PLANS FOR THE PERRY CENTENNIAL

If Commodore Oliver Hazard Perry knew of the boom he would give to boating on the Great Lakes one hundred years after his famous victory he would, undoubtedly, have "fit" the British at least every five years.

Lake Erie and Great Lakes sailors are taking advantage of the Perry Centennial to "pull off," at Put-in-Bay next July, the biggest race meet that has ever been held. The plan is at present to have two full weeks of racing, the first week being devoted to sailing races under the auspices of the Inter-Lake Yachting Association and the last week to power boat racing. During this latter week, which begins July 27, will be held the National Carnival, usually held on the Hudson in September. It will be the first time this event has ever been held in the West. Many Eastern craft will be shipped out for this event.

It would be a fine thing if some of the salt water sailors would take boats to Put-in-Bay to try their luck against the fresh water sailors, taking in the racing at Chicago afterwards. Such a trip should prove of interest to Atlantic coast racing men.



From stereograph copyright by H. C. White Co., of New Yo

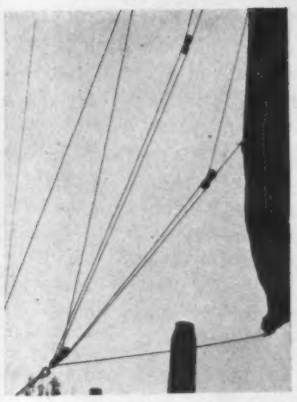
SOME QUEER CRAFT FROM THE FAR EAST

A Cingalese fishing catamaran.
Chinese junk on the Hwang-Ho.
Cormorant fishing, Japan.
Around the pine-clad island of Matsushima, Japan.
A Hindue boat on the Ganges.
Poling a large dugout up the Irrawadd
Sunset on Subig Bay, Manila.
Floating down the Ganges. Some work for the sailmake

A Junk-Rigged Power Cruiser on the Pacific Coast

By G. B. WARREN

WHITE CLOUD, A JUNK-RIGGED POWER BOAT FOR THE PACIFIC COAST BUILT IN HONG KONG



DETAIL OF MAIN SHEET

WHITE CLOUD, a sail-auxiliary power cruiser owned by Capt. H. Pybus, of Vancouver, B. C., is decidedly a cosmopolite. She has the rig of a Chinese junk above decks and a 24 horsepower kerosene engine below, and is modeled on the lines of a sampan—which, curiously enough, correspond very closely to those of one of our fast old clipper ships on a reduced scale; a fact which strikingly illustrates the way in which two widely separated races will come to the same solution of a given problem through a process of evolution. It is interesting to note that Capt. Pybus, who has been for years in the Oriental trade as captain of one of the C. P. R. Empress liners, considers the junk rig superior to our ordinary fore-and-aft rig for windward work. He says that the junks of the China Sea, with their big sails sheeted in and setting as flat as battens can make them, will lay a good point closer to the wind than the schooner-rigged trading craft, though on account of having no great depth of keel they make leeway. The old pirates of the China seas, with their ungainly-looking but fleet junks, have given many demonstrations of a stern chase being a long one.

White Cloud's dimensions are 58 feet over all, 12 feet beam, and 7 feet 8 inches moulded depth. She has a 14-inch keel. Her greatest draught is 6 feet. Four tons of lead are moulded on her keel, and four tons of iron and two tons of rock ballast well distributed inside—a combination of nicely balanced weights making for a very easy motion in a seaway. Her gross tonnage is given as 28 and registered tonnage 15. She spreads a total of 1,600 feet of canvas in a mainsail and foresail of typical junk rig, besides which she has a housing bowsprit; and jib, staysails and studdingsails can be crowded on, if necessary. The heavy bamboos that run horizontally across her mainsail and foresail fit into pockets, except at the forward end, where they are left bare to take up the wear of chafing on the mast.

The sail, instead of being attached to hoops sliding on the mast, is held by a sort of lacing of galvanized wire rope fastened to each bamboo several feet from the mast on either side and then carried diagonally up to the next bamboo, allowing the sail to be shifted forward or aft by tackles.

Reefing is done by taking up on two sets of topping lifts which carry the weight of the lower bamboo. The halyard is then slacked away, the loose canvas folds down between the lifts, and the next bamboo settles on top. There is no tying of reef points, and, as each bamboo represents a reef, any desired amount of sail can be taken in. It is here that the use for the complicated main sheet comes in. (See photo.) As each bamboo comes down the slack is taken up on the light tackle connecting the ends of all the bamboos and the whole web is made taut

LINES OF WHITE CLOUD

CHINESE SAMPANS IN HONG KONG

again, irrespective of how many bamboos have been lowered.

On her arrival at Victoria, B. C., a severe test, *not* included in Lloyd's requirements, was imposed on White Cloud. She had been brought over from Hong Kong, where she was built, on the deck of a big Blue Funnel line freighter. In the process of unloading her, while swinging outboard at the derrick head, a guy parted. White Cloud slipped through the slings, crumpled her bronze rudder and propeller against the steamer's side, and plunged bow first into the sea, disappearing completely from sight for a moment. She had dropped about 40 feet from the derrick head, and, except for a bent shaft and damaged rudder, she does not appear to have suffered any strain, and is to-day as tight as a bottle.

White Cloud has a steel cabin trunk, and is divided by steel bulkheads into three watertight compartments, with no communication through below decks. A four-cylinder, 24 B. H. P. Gardner kerosene engine lives in a commodious engine room in the stern of the vessel and drives her under ordinary conditions at six *knots* on a consumption of three and a half gallons of fuel per hour. Her tanks have a capacity of 450 gallons. Lighting is by electricity throughout.

She has accommodations for 8 passengers, two hands in the forecastle and an engineer. The main saloon is entered by a companionway at the after end of the cabin trunk. It has Pullman berths, sleeping four, and a swinging table. Forward, on the port side, is a bathroom, and next to it an ice chest. Just opposite these is the galley, fitted with a Shipmate range. Abaft of the main cabin is the ladies' stateroom, with sleeping accommodation for four and with bathroom adjoining. An unusually lofty ceiling gives one the impression of being on a large vessel and makes the cabins airy and cool, as they are exceptionally well ventilated by skylights, large ports and cowl ventilators.

The vessel steers by a wheel in the cockpit, and can also be handled by another wheel at the forward end of the cabin trunk when running under power or picking up moorings.

The Value of Restricted Class Racing

REALIZING that speed-boat racing, as it has been developed in this country in the last few years, is very unsatisfactory to the average power boat man who can only afford to spend a moderate sum for a craft, and yet who would like to enter a race occasionally, the A. P. B. A. at one of its recent meetings again took up the matter of advocating restricted classes as a possible solution of the present chaos in racing affairs.

Restricted class racing merely means certain restrictions being placed on boats to fit the various classes, such as a minimum length, minimum weight for a given size, maximum power, etc., the idea being to keep anyone from going to the extreme of lightness and power (which is possible with unlimited means) and the production of freak boats.

Racing of this character has been tried before in this country, although in a very desultory way, and as yet has not been given a thorough try-out by American racing men. Restricted classes have been promoted before, but usually with so many restrictions as to prevent building. In England, however, the case is quite different, and in the last three years a 21-foot restricted class has been built up and has flourished exceedingly, a fleet of twenty-one of these little boats furnishing the major part of power boat racing in England last summer. Since then eight or nine new boats have been added to the class. Where in this country can we match any such successful class as this, or one that has given such sport and produced such an excellent type of boat?

Under the proposed restrictions a number of these classes of different sizes could be started in this country with the chances of bringing about the finest racing we have ever seen and the elimination of the bothersome handicap problem that is always facing regatta committees.

The restrictions for these classes, drawn up by the committee of the A. P. B. A. having charge of the matter, have been carefully thought out, are not too numerous to be burdensome, and leave lots of latitude for the skill of naval architect and engine builder. The only restrictions are: a minimum over-all length for any class, a minimum weight and a maximum cylinder volume of engine. These apply to both hydroplane and displacement boats, the two types being kept separate so that the question of racing one type against the other will not come up.

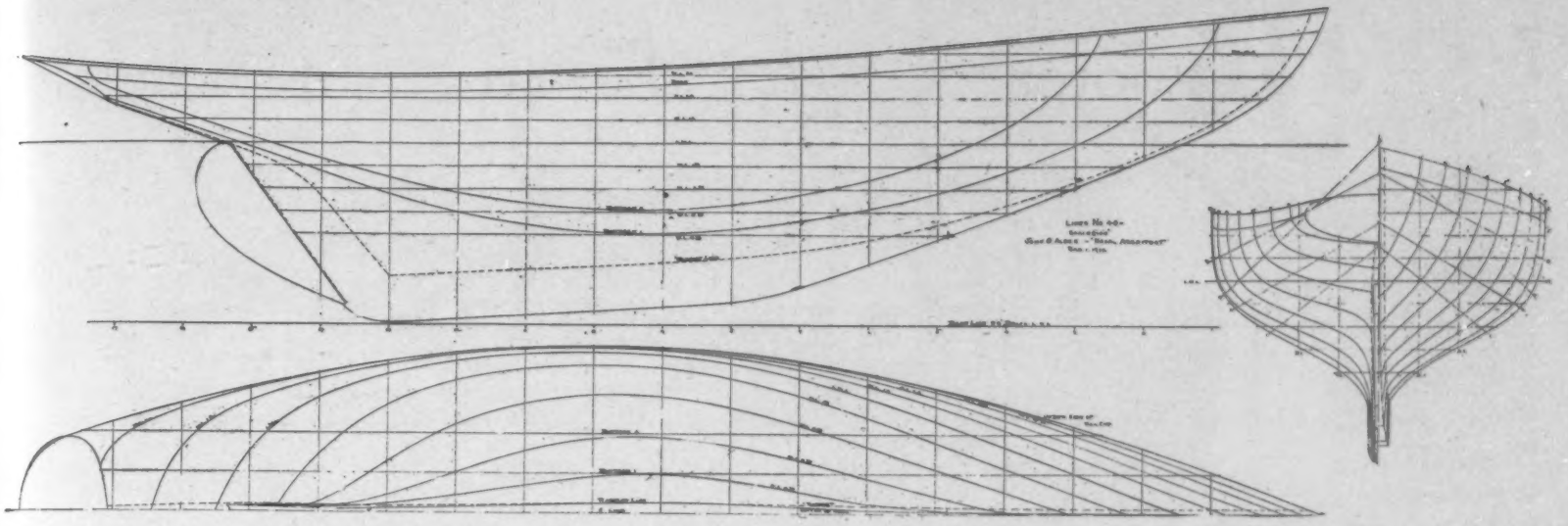
The boats will be raced without time allowance or handicap.

Here are the restrictions imposed on the various classes in the two types of boats. In any class, boats may be longer than the minimum, may weigh more than the minimum, and may have less than the maximum cylinder volume, though there are no allowances for variations of the limits given in the table. All boats must be fitted with reversing propeller or reverse clutch, and, to be eligible, the hull and engine must be built in this country.

Class	Minimum Length O. A.	Minimum Weight	Maximum Cylinder Vol. 4-Cycle	Maximum Cylinder Vol. 2-Cycle
HYDROPLANES				
RH—1	26	2,400	860	645
RH—2	20	1,800	580	435
RH—3	16	1,400	400	300
RH—4	14	1,000	250	200
DISPLACEMENT BOATS				
RD—1	32	3,200	860	645
RD—2	26	2,400	580	435
RD—3	20	1,800	400	300
RD—4	16	1,400	250	200

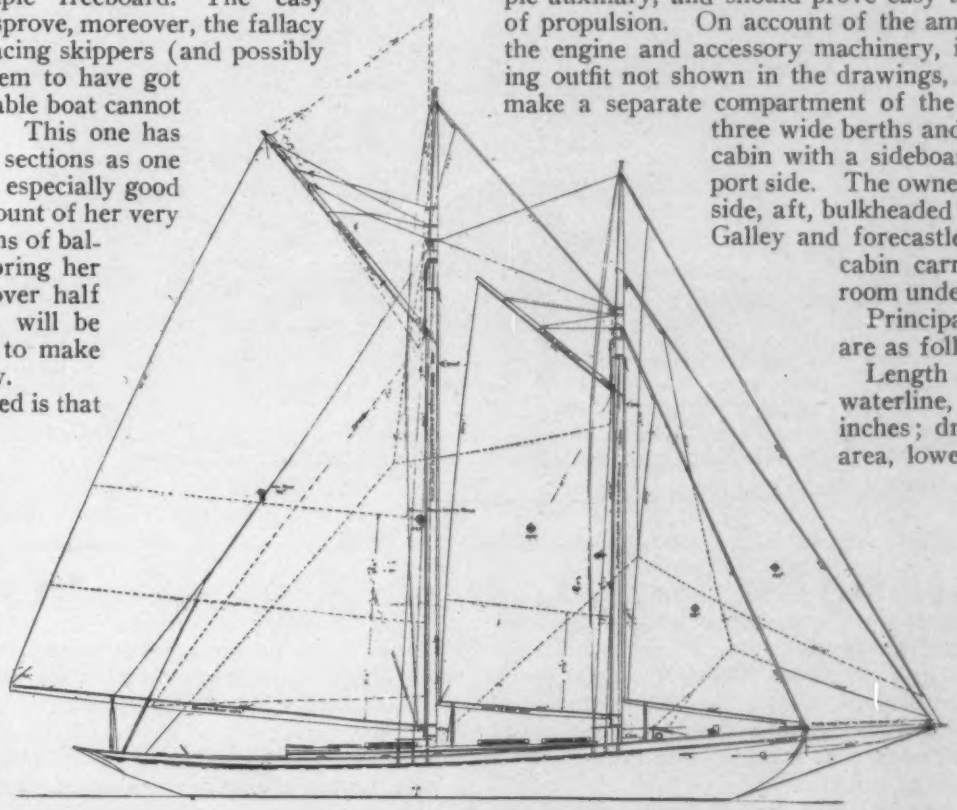
The conditions are good. Why not sink your desire to have the fastest boat that floats (which you won't have, anyway) for the pleasure of getting out an evenly balanced, sensible class?

ENGLISH 21-FOOT RESTRICTED BOATS. THE TYPE OF CRAFT DEVELOPED UNDER THE ENGLISH 21-FOOT CLASS RESTRICTIONS



A Cruising Schooner on Fisherman's Lines

ALL lovers of real boats will find delight in a study of the lines at the top of this page from the board of Mr. John G. Alden, N. A., of Boston, Mass. They are an eloquent appeal for the wholesome type of hull, with its sweeping sheer, good bearings and ample freeboard. The easy entrance and clean run disprove, moreover, the fallacy which too many of our racing skippers (and possibly a few designers, too) seem to have got into their heads, that an able boat cannot be otherwise than tubby. This one has as easy lines and as fair sections as one could wish, and should be especially good in windward work on account of her very sharp entrance. Nine tons of ballast will be required to bring her down to her waterline, over half of which (or five tons) will be carried inside, so as not to make her too quick in a seaway.



The general type followed is that of the modern semi-knockabout Gloucester fishing vessel, with its raking transom and gracefully curved stem. The overhangs are just long enough to sweeten up the lines without being excessive or so flat as to pound in a seaway.

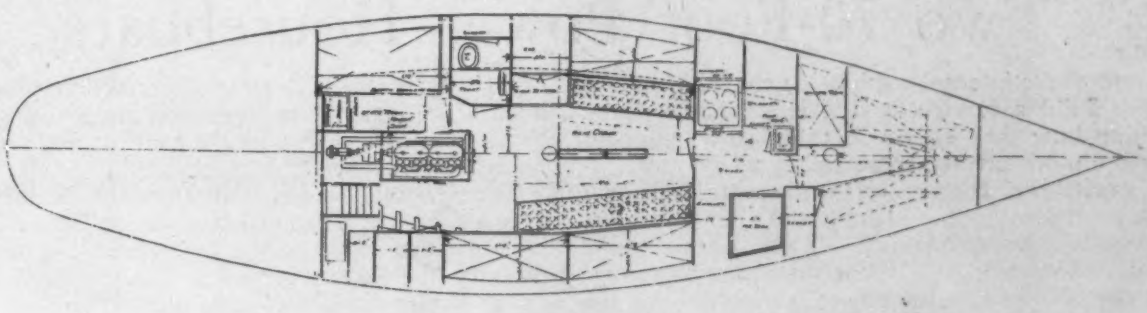
While the rig has been kept moderate and is of the pole-masted variety, a jackyard topsail may be set flying on the main, as indicated in the drawing. The forestaysail—a true fisherman's "jumbo" with a club on the foot—has a single sheet which works on a traveler; thus the only things which it is necessary to shift on coming about are the jib sheets. A rail a foot high is carried around the deck, and will, no doubt, prove a great comfort at sea, however much it may amuse self-appointed critics from the "drifting-box" classes at the Club anchorage.

As the owner's requirements for this boat are somewhat unusual, it was deemed advisable to install a four-cylinder motor of a power unusual as an auxiliary in this size of schooner. In fact, she is more a combination sail-and-power vessel than a simple auxiliary, and should prove easy to drive under either form of propulsion. On account of the amount of space occupied by the engine and accessory machinery, including an electric lighting outfit not shown in the drawings, it seemed impracticable to make a separate compartment of the engine room. There are three wide berths and two transoms in the main cabin with a sideboard and large locker on the port side. The owner's stateroom is on the port side, aft, bulkheaded off from the engine room. Galley and forecastle are forward. The main cabin carries 6 feet 3 inches headroom under the carlines.

Principal dimensions of the vessel are as follows:

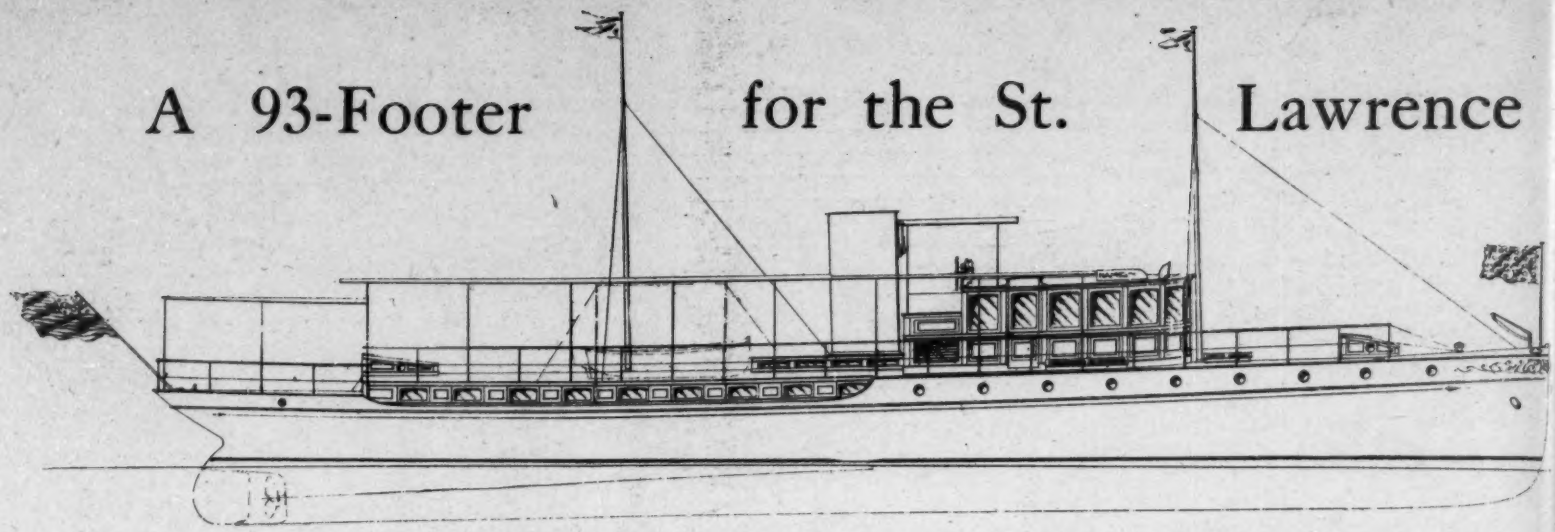
Length over all, 57 feet; length waterline, 42 feet; beam, 14 feet 7 inches; draft, 7 feet 10 inches; sail area, lower sails, 1,593 square feet; freeboard, bow, 6 feet; freeboard, least, 3 feet.

Although the vessel has no topmast, properly speaking, it will be noted that provision has been made for carrying a reaching jib topsail and a maintop-mast staysail, paradoxical as that may seem. The pole masts have been continued far enough above the hounds to make the setting of these sails possible. There is a good-sized cockpit, which is not shown on the accommodation plan, and aft of this, in the overhang, is considerable space for the stowage of sails, boatswain's supplies, etc., while the tanks occupy the space immediately underneath the cockpit.

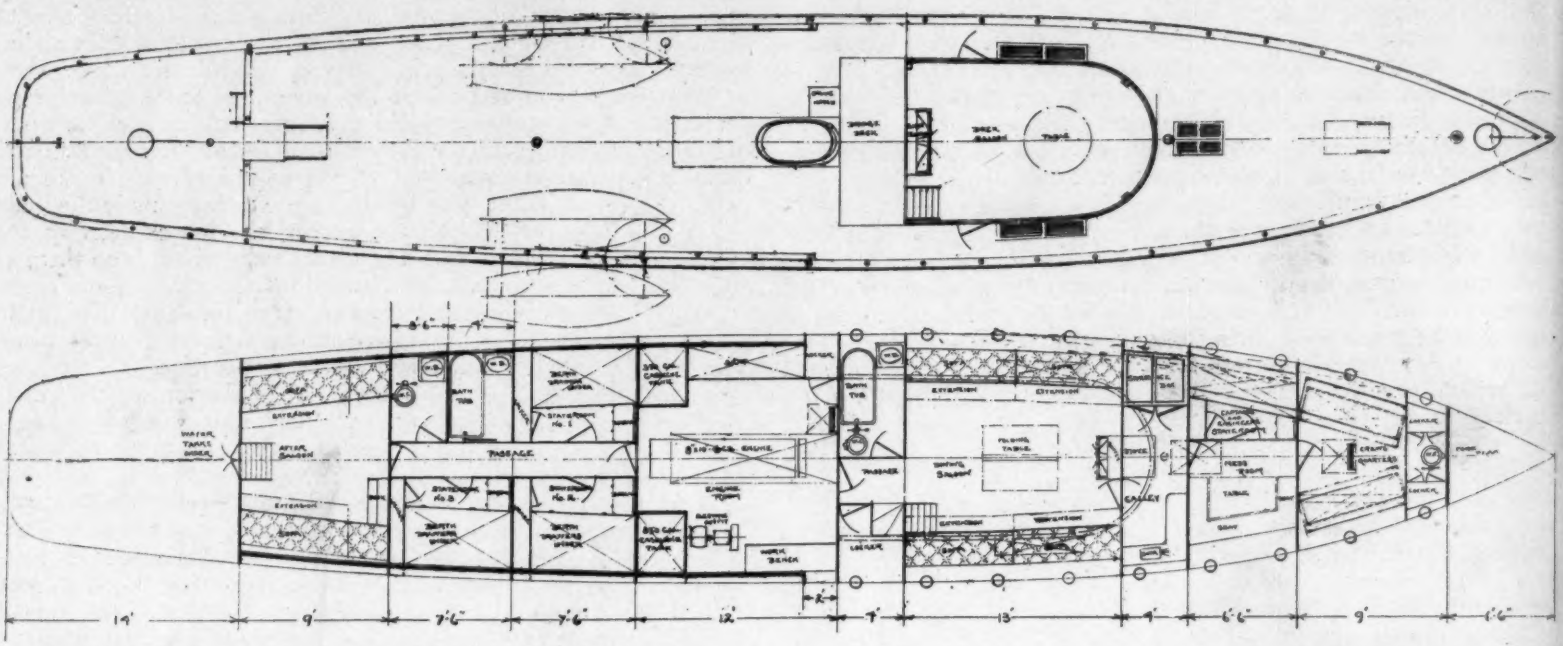


It is difficult to see how this type of vessel could be improved upon for conditions requiring a boat both able and a good sailer.

A 93-Footer for the St. Lawrence



AN unusually well arranged accommodation plan is shown in the accompanying drawings of a 93-foot motor cruiser, designed and built by the New York Yacht, Launch & Engine Company, of Morris Heights, New York, for use on the St. Lawrence River. While not an inch of space has been wasted anywhere, the staterooms and other compartments are of ample size, and there is no tendency toward cramping things, which is remarkable when one discovers that the vessel furnishes comfortable sleeping accommodations for a complement of eighteen persons all told, fore and aft.



At the extreme forward end of the hull comes the crew quarters with pipe berths for four men. Aft of this, on the starboard side, is a mess room for the crew, and on the port side a stateroom for the pilot and engineer. Next comes the galley, which extends across the full width of the ship.

The main saloon is 15 feet in length, and is fitted with extension transoms along the sides, which may be made up into comfortable berths for four people. This will be especially convenient when there are a number of extra men in the party, as there is a separate bathroom just abaft the saloon for the use of the occupants of that compartment.

The engine room is of requisite length for the 6-cylinder, 100-horsepower, Twentieth Century marine engine, leaving room to pass in front of the flywheel. The gasolene tanks are built in, one on each side in watertight compartments, and, in addition, the engine room contains an electric lighting outfit and a work bench.

Abaft the engine room are the owner's and guests' quarters proper, consisting of three double staterooms and a bath. At the extreme after end is a small saloon having extension transoms, which may be turned into berths for two persons.

This room has access to the after deck, whence the level of the main deck may be reached by steps on the port side of the companion hatch. The boat is handled from a bridge deck just abaft the large, airy deck saloon forward. The principal dimensions are: Length over all, 93 feet; length on waterline, 89 feet; beam, 13 feet; and draft, 4 feet. The steamship stern and straight sheer line give the boat an extremely shippy and attractive appearance.

Two 70-Foot Power Houseboats

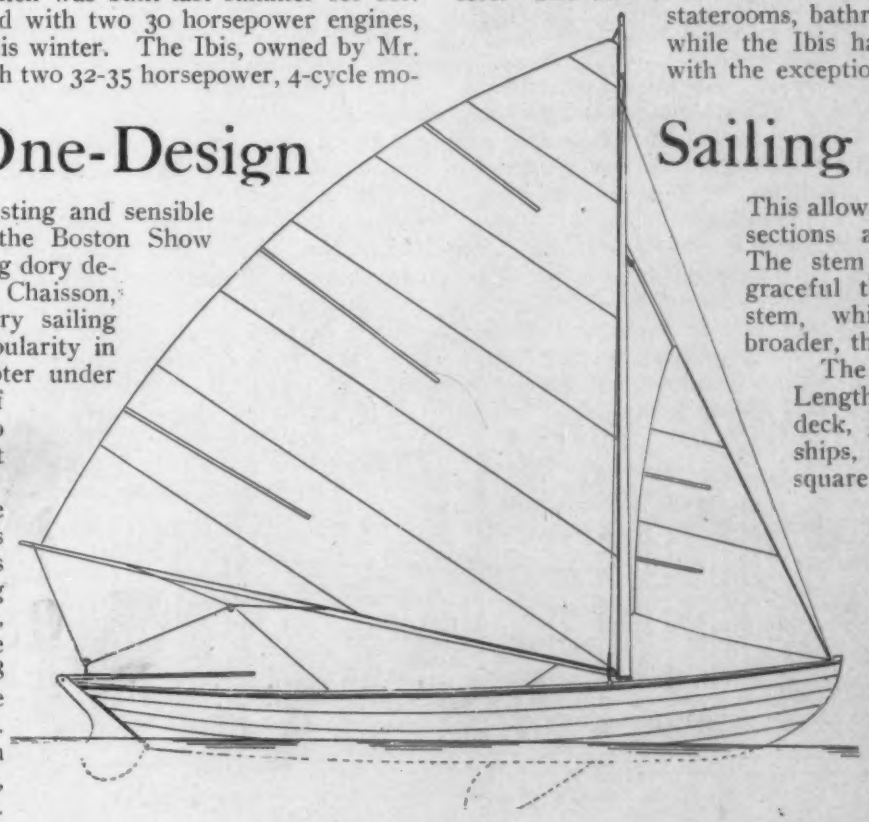
SINCE the advent of the internal-combustion engine has made it possible to build a houseboat that is something more than a floating hulk that had to be towed from place to place there has been a much greater appreciation of the possibilities of this type of craft. For that reason the photographs shown here of the two 70-foot houseboats Calabash and Ibis will prove of interest as being the latest productions of the Mathis Yacht Building Company, of Camden, N. J. For some time this company has made a specialty of cruising power houseboats and has brought them to a high state of perfection, producing a boat having practically all the weatherliness and cruising radius of a power boat of the same size, with the comfort and accommodations of a houseboat.

These boats are of the standard Mathis design—70 feet over all, 16 feet 8 inches beam and 27 inches draft. With some minor changes in the deck arrangements they are practically duplicates of the Lanai, owned by Ex-Commodore Arthur Curtiss James, which made such a splendid record on her Florida cruise

CALABASH AND IBIS. TWO 70-FOOT SHOAL-DRAFT HOUSEBOATS DESIGNED AND BUILT BY THE MATHIS YACHT BUILDING COMPANY

last year. The Calabash, which was built last summer for Mr. W. J. Mathewson, is powered with two 30 horsepower engines, and has cruised to Florida this winter. The Ibis, owned by Mr. F. F. Chrystie, is powered with two 32-35 horsepower, 4-cycle motors. She also is in Florida waters. The Calabash has three staterooms, bathroom, main saloon and galley, while the Ibis has the same accommodations, with the exception of an additional stateroom.

18-Foot One-Design Sailing Dory



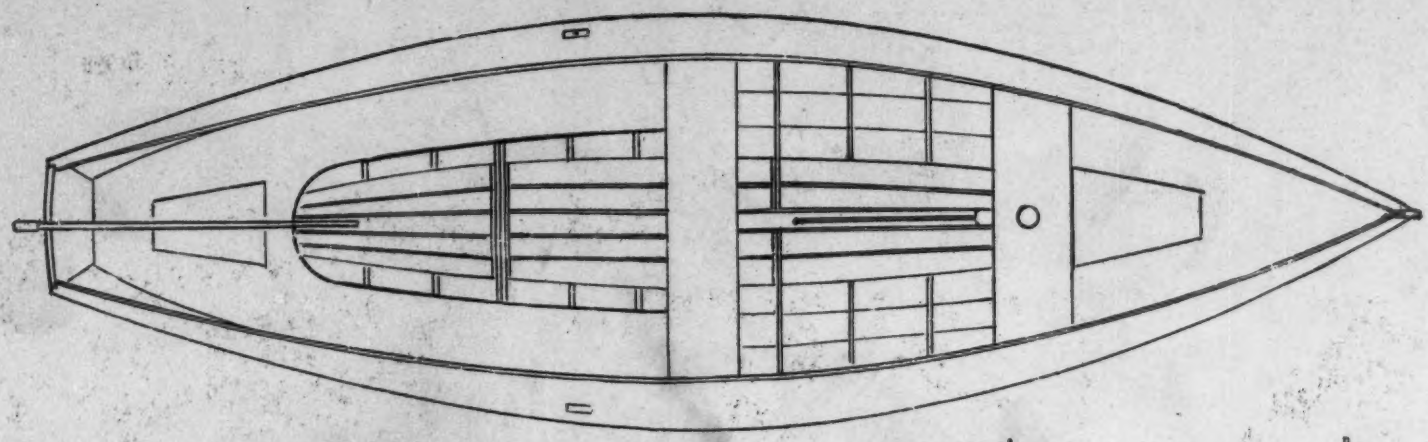
ONE of the most interesting and sensible little boats seen at the Boston Show was the 18-foot sailing dory designed and built by George L. Chaisson, of Swampscott, Mass. Dory sailing and racing has grown in popularity in recent years, and the 18-footer under consideration, the plans of which are here shown, is, to our mind, the best little boat of her type ever produced.

Some of the distinctive features which she embodies are unusual bearing surfaces and a side deck extending from the stem to the stern, tapering from 2 inches at the bow and stern to about 8 inches amidships, with a little coaming extending above it. The boat has five planks on each side instead of four, which is the usual number. This allows a more graceful curve to the sections and better bearing surfaces. The stem is well rounded and more graceful than the usual straight dory stem, while the stern is somewhat broader, the sheer being graceful.

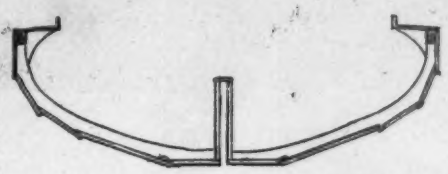
The dimensions of the boat are. Length over all, 18 feet; beam on deck, 5 feet 6 inches; depth amidships, 22 inches; total sail area, 130 square feet.

The fittings are all of the best, the sail running on a brass track on the mast, the mainsheet traveler being of brass and the other fittings of galvanized iron. She has a bulkhead fore and aft entered by a hatch in the forward and after seats, giving good stowage facilities.

The boat would make an ideal small, one-design class



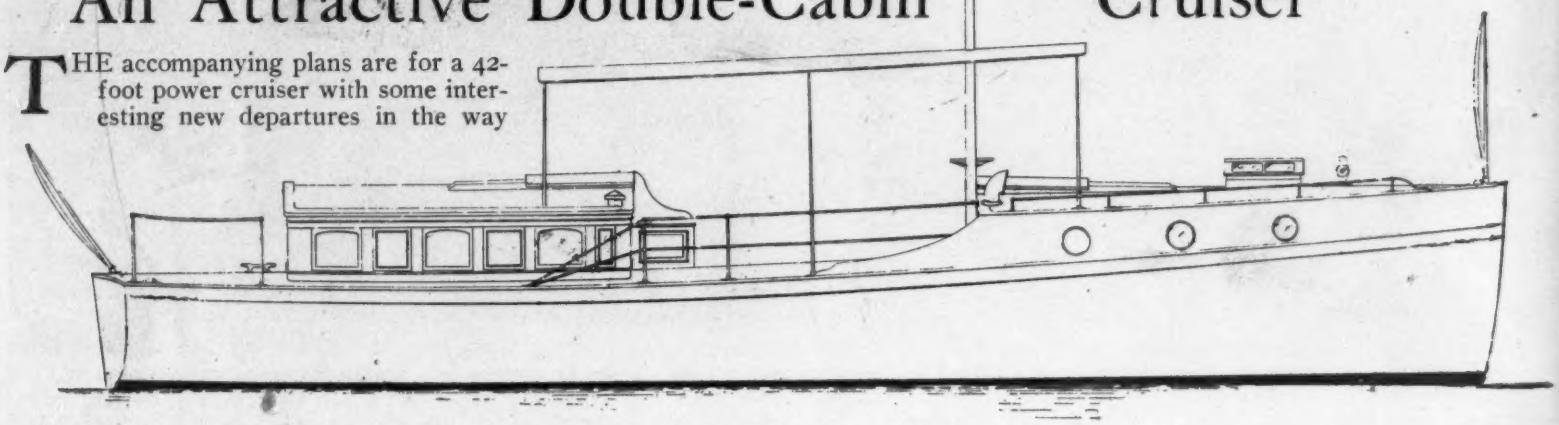
for a club or an excellent boat for afternoon sailing. The 'midship section here reproduced shows evidence of great stability, at ordinary angles of heel, in the flat floors and generous beam. In fact, in this respect the sailing dory has departed entirely from the lines of the fisherman's dory, from which it was evolved. The latter type of hull, with its tumbler-like section, is, contrary to the somewhat widespread belief, extremely cranky, except when deeply laden, and rather a poor sail carrier even then.



MIDSHIP SECTION

An Attractive Double-Cabin Cruiser

THE accompanying plans are for a 42-foot power cruiser with some interesting new departures in the way of cabin arrangement, which has been designed by Messrs. Gielow & Orr, of New York, for a local yachtsman.



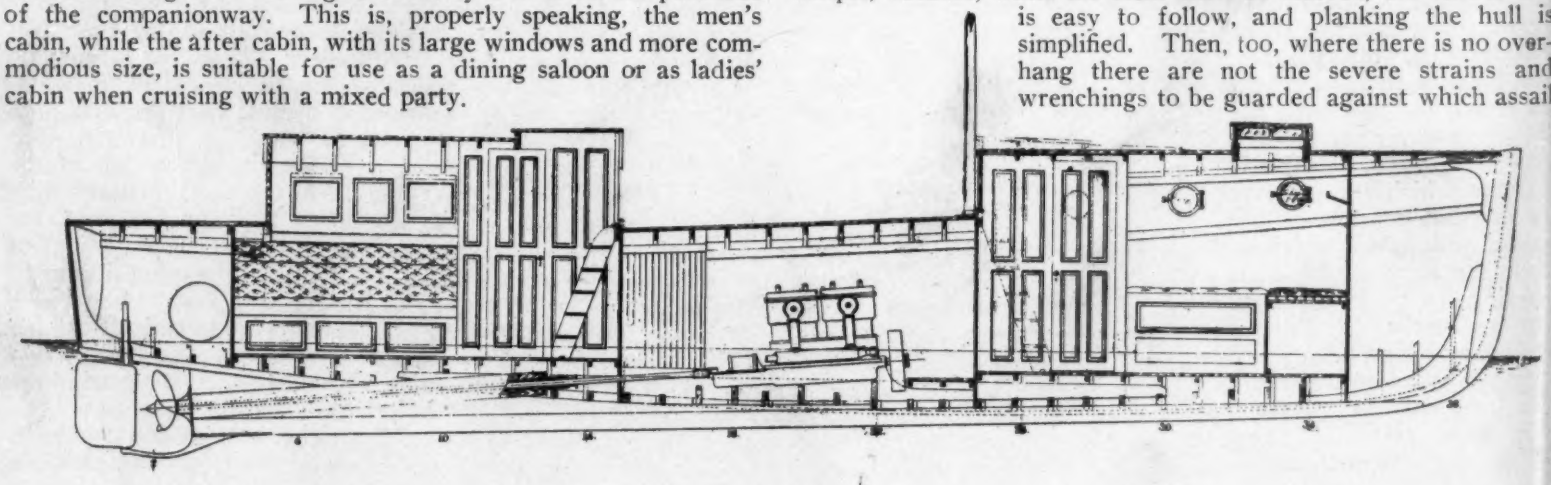
The boat is of the two-cabin type, with engine located under a portion of the main deck amidships. This arrangement provides a steering and lounging space which is well sheltered, and, at the same time, allows simpler and stronger construction than does either the raised bridge deck or the cockpit type, as the deck beams amidships are carried right across, intact.

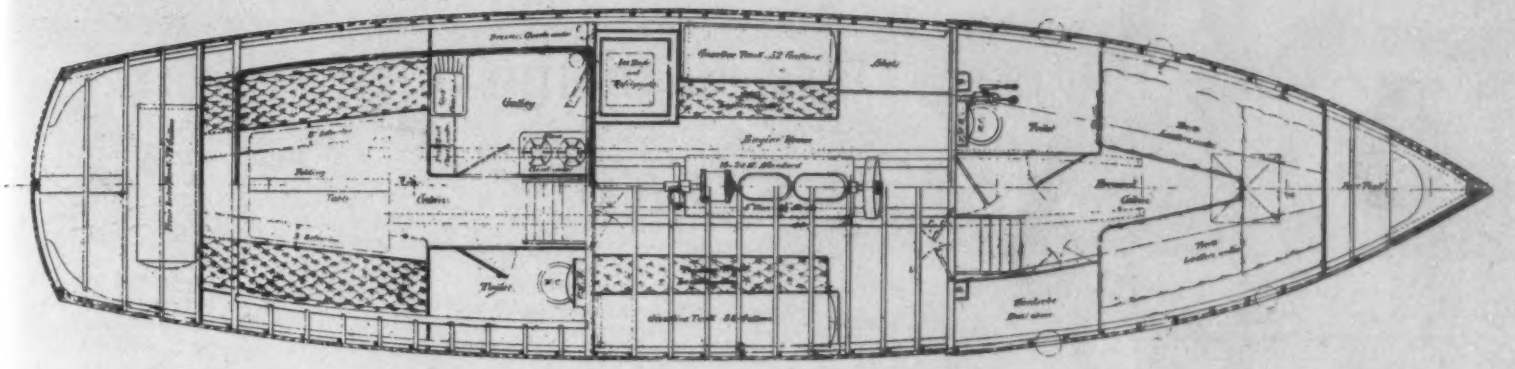
From the viewpoint of accommodations the interesting thing is that the two cabins are entirely separate and independent. The forward one contains double transom berths, with lockers under, communicating with the engine room by a door on the port side of the companionway. This is, properly speaking, the men's cabin, while the after cabin, with its large windows and more commodious size, is suitable for use as a dining saloon or as ladies' cabin when cruising with a mixed party.

The combination of raised deck forward and trunk cabin aft is a very sensible and attractive one when properly worked out, as in the present case. The boat will be finished inside with mahogany, and the deck fittings are to be of teak. She will be equipped with a 16-20 horsepower, 4-cylinder motor, which, it is estimated, will give her a speed of at least 10 miles an hour.

The principal dimensions are: 42 feet over all; 40 feet 9 inches waterline; 10 feet beam, and 3 feet 4 inches draft.

The type of hull here employed, with its plumb stem and transom chopped off short at the waterline, has much to recommend it, in that it makes the design "all boat." The construction, too, is simple, because, while the stem must be scarfed, the rabbet line is easy to follow, and planking the hull is simplified. Then, too, where there is no overhang there are not the severe strains and wrenchings to be guarded against which assail





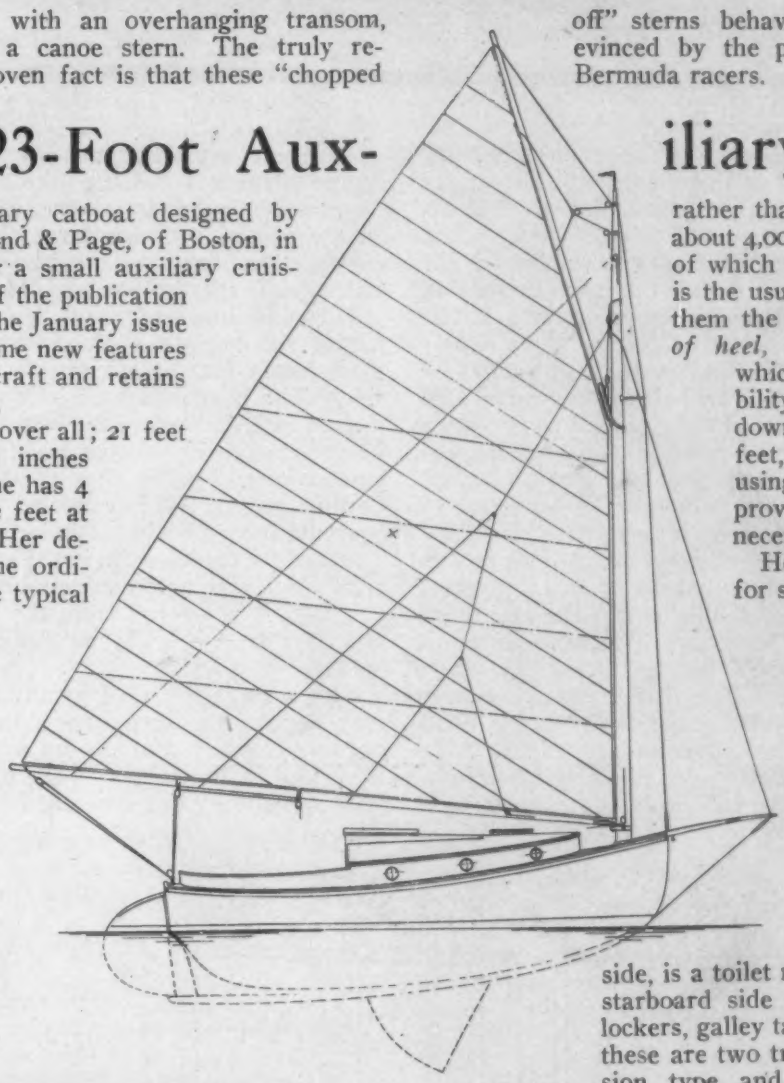
the structure of a boat built with an overhanging transom, or even, in some cases, with a canoe stern. The truly remarkable but none the less proven fact is that these "chopped off" sterns behave well in a following sea, as evinced by the performance of Dream and other Bermuda racers.

A 23-Foot Auxiliary Cat

HERE is a 23-foot auxiliary catboat designed by Messrs. Swasey, Raymond & Page, of Boston, in response to the call for a small auxiliary cruising cat which came as a result of the publication of their plans for a 17-footer in the January issue of YACHTING. She embodies some new features not usually seen in this style of craft and retains all the advantages of the old type.

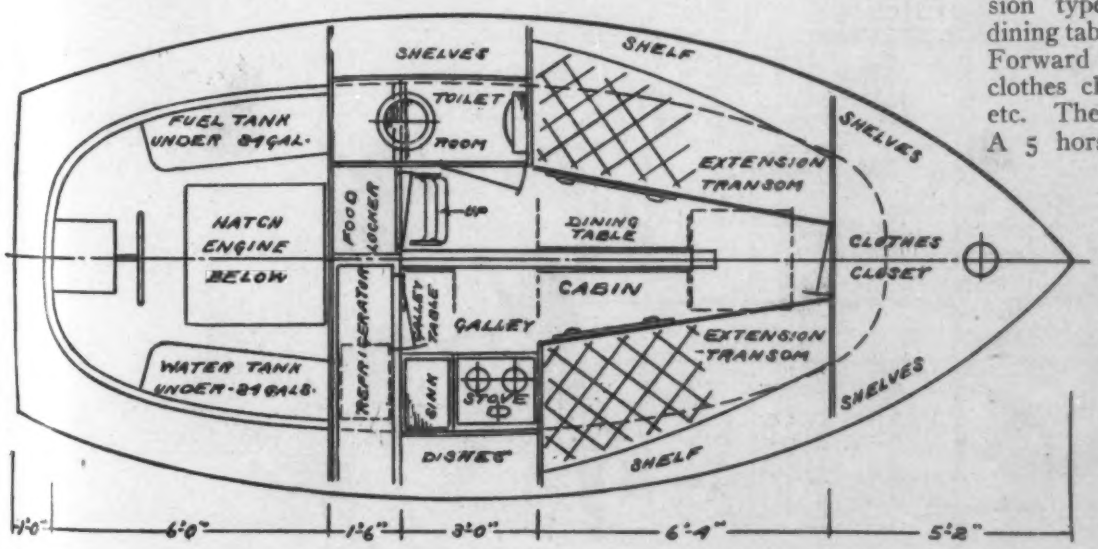
Her dimensions are: 23 feet over all; 21 feet 6 inches waterline; 10 feet 6 inches beam; 3 feet 3 inches draft. She has 4 feet 2 inches freeboard at bow, 2 feet at stern and 1 foot 9 inches least. Her design is a little different from the ordinary Cape catboat. She has the typical high bow, lots of sheer and regulation extra-wide breadth of beam in this class of boat; but she is a little deeper, has more deadrise, and her sections would make an easier boat to drive in rough water than the usual run of catboats. Still, she has a hard bilge, which will make her stand up in a breeze.

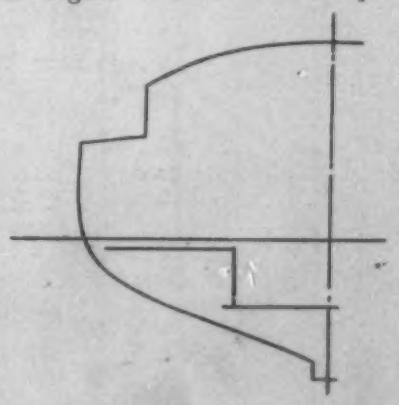
The sections aft are brought down with an S-shaped curve, which will give depth for the engine and will also make a boat that will steer well in a following sea; and any bilge water will drain aft under the cockpit rather than into the cabin. She will have about 4,000 pounds of ballast, 3,000 pounds of which will be inside, well winged out, as is the usual practice in wide boats, to give them the most stability *at ordinary angles of heel*, and 1,000 pounds on the keel, which will give a greater range of stability and help in case of bad knockdowns. The sail plan has 550 square feet, which is fairly moderate; but by using an engine in light airs should prove sufficient, and will avoid the necessity of reefing too often.



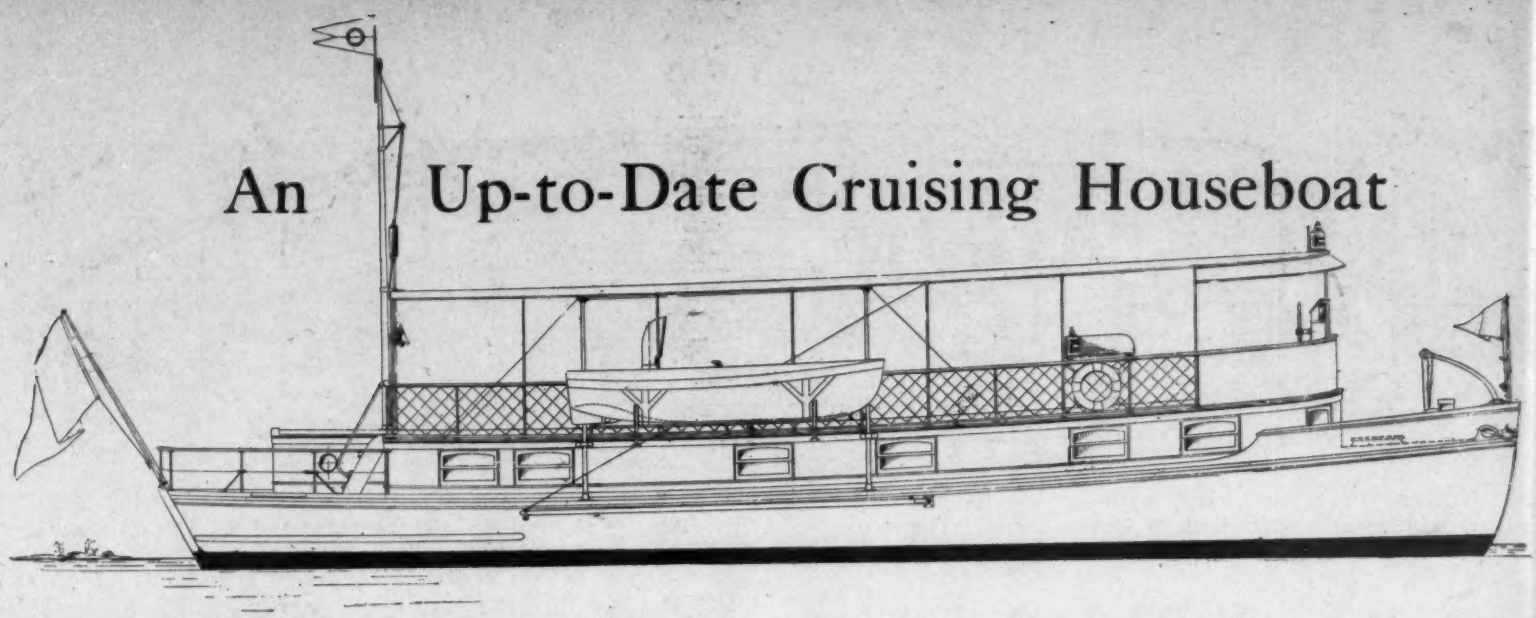
Her arrangement plan is unusual for such a small boat. There is practically no waste room in her. The cockpit is 6 feet long and 7 feet wide, and has a seating capacity for from six to eight people comfortably by utilizing the bridge deck.

Under the cockpit seats on either side are water and fuel tanks of 24 gallons capacity each. Between the cockpit and cabin is a bridge deck, under which is a food locker and a large refrigerator. In the cabin, on the port side, is a toilet room over 4 feet long, and on the starboard side aft is a galley, with sink, dish lockers, galley table, coal stove, etc. Forward of these are two transoms, which are of the extension type and will sleep two on each. The dining table is hinged from the centerboard trunk. Forward of the cabin in the fore peak is a large clothes closet with shelves and racks for bags, etc. The cabin has 5 feet 4 inches headroom. A 5 horsepower engine is under the cockpit.





An Up-to-Date Cruising Houseboat



THIS 60-foot cruising houseboat has been designed by Messrs. Swasey, Raymond & Page, Inc., of Boston, for a New York yachtsman. As the boat will be used in the summer months on Long Island Sound and adjacent waters and in the winter in Florida, it has been necessary to combine a fair degree of seaworthiness with the comfort of the usual houseboat, and at the same time produce a hull which can be driven at a fair cruising speed under moderate power. Moreover, extremely shoal draft is made necessary by the shallow bays and rivers of the South, where the boat will be used for half of the year. This has been secured by adopting the tunnel stern type of construction with the propeller protected by a heavy skeg in case of accidental grounding. The maximum draft is thus only 2 feet 10 inches. The boat's waterline length is 56 feet 4 inches and her beam 17 feet. The overall length, as stated above, is 60 feet.

The freeboard has been kept rather higher than usual in this type of craft, and this, together with an unbroken deck line, gives the boat an unusually able and business-like look. The cabins are well lighted and ventilated by large, square windows. In addition, there are skylights and cowls.

The forward end of the accommodation plan consists of a large main saloon. This has a folding table in the center and is fitted with a writing desk, buffet, piano and open-grate stove, in addition to the transoms, which may be extended to make a couple of extra berths. A stairway on the port side leads to the upper deck.

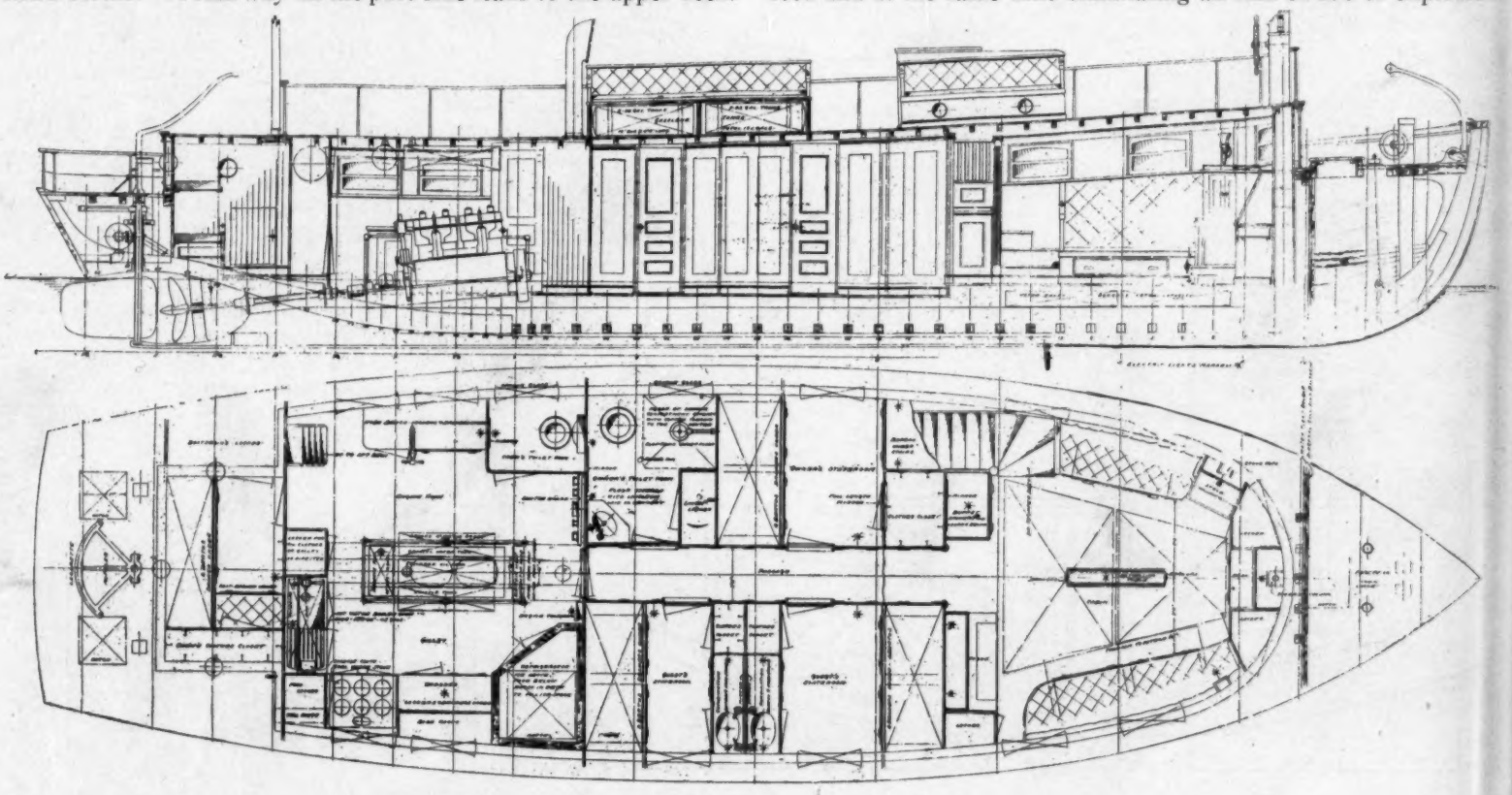
A center line passage runs from the saloon to the large combined engine room and galley at the after end of the boat. Between the two come the staterooms, a commodious owner's stateroom on the port side with a large clothes closet off it, and the two guests' staterooms on the starboard side. Just abaft the owner's stateroom is a bathroom, which is fitted with a shower.

The galley takes up the whole starboard side of the engine room, with a refrigerator at the forward end. On the port side is a work bench for the engineer. The crew's toilet is also on this side. The boat is lighted by electricity, and the switchboard is conveniently located on the forward bulkhead of the engine room. The engine itself, which takes up the center of the combined engine room and galley, is a 40-horsepower, 6-cylinder, Twentieth Century motor. It is expected that it will be able to drive the boat at a speed of 8 knots under normal conditions.

Aft of the engine room in the extension of the cabin house is the crew space with accommodations for two men.

The boat is steered from the forward end of the upper deck, and carries two boats on davits—a power dinghy and a lifeboat.

This deck is sheltered by an awning with side curtains, which may be put up to keep out wind or rain. She is lighted throughout by electricity, and has hot and cold running water. Gasolene is carried in four tanks on the upper deck, thus insuring gravity feed and at the same time eliminating all risk of fire or explosion.



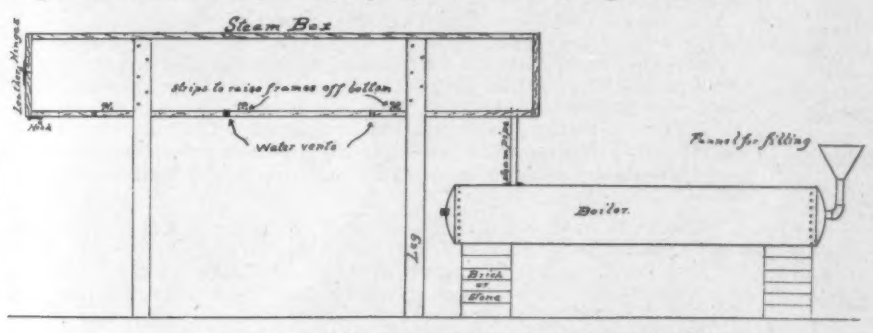
USEFUL HINTS & WRINKLES

Under this head we will publish short articles from the readers of YACHTING, describing original ideas they have worked out for improving the efficiency and handiness of their boats and engines. These will be paid for at space rates. Articles must not be over 500 words in length, should be accompanied by ink drawings where possible, and must be addressed to Editor of YACHTING, 141 W. Thirty-sixth Street, New York. Here is a chance to be a philanthropist by giving to other boat owners information on some of the handy wrinkles you have applied to your own craft.

A Simple and Effective Steam Box

The sketch herewith shows a simple and inexpensive steam box which will come in handy for those who intend to build their own boats this spring. First, procure an old hot-water boiler. Almost any plumber has these, or will get you one for the cost of cartage. Also, get two short pieces of ¾-inch pipe, a nipple, an elbow and three plugs, the latter to screw into the unused taps in the boiler.

Build a box about 1 foot square and a little longer than the longest piece you wish to bend. For boats up to 25 feet a box 7 feet long will do. Old lumber in fair condition will answer; if lumber is dry do not make joints too tight, as steam will swell the wood considerably. Nail strips over the open joints, and don't forget to nail three or four strips about 2 inches high across the bottom inside, so that steam will reach all sides of the frames to be bent.



FRONT AND END ELEVATION OF HOME-MADE STEAMBOX

Nail four legs on sides of the box to raise it about 3 feet above the ground; or it may be placed handy to a window, or even inside your workshop, by simply lengthening the steam pipe. Bore a few holes in the bottom of the box, so the water from the condensed steam will run out. Make a door on the opposite end from steam connection. Two pieces of leather strap make good hinges. Also put a hook at the bottom of the door.

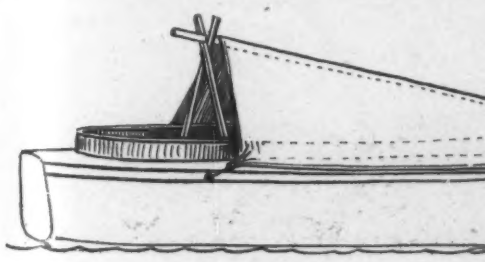
Get some bricks or flat stones and a couple of iron rods on which to rest the boiler about 1 foot above the ground. It is also a good plan to pile up dirt or rest a couple of sheets of iron against the sides of boiler to increase the draught and confine the heat.

Connect up as shown in diagram, using an old funnel for filling. Fill about one-third full with water, and cap or fit a wooden plug in filling pipe. Build a wood fire under the boiler and when steam begins to generate place the frames in the box, making a piece of string fast to the end of each, so they may be quickly pulled out when pliable. Provide yourself with a pair of heavy gloves, for when the frames come from the box they are very hot.

Be careful in selecting the material for frames, picking out the long fibre, straight grain, for if it is knotty or cross-grained it cannot be bent to place if you steam it all day, as it will break like punk. A few trials will show when the frames have been steamed long enough. Oak up to 1¼ inches should be soft and pliable in about a half-hour. Have some extra frames ready, as the most experienced break a few.

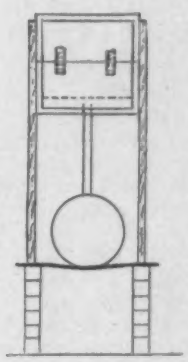
Modifications of the above may be made to suit conditions, such as using almost any kind of a riveted metal tank (not soldered); if you have gas at hand, that may be used for heating, especially for inside work.

H. W. LOWEREE.



AN IMPROVISED SPRAYHOOD AND SHELTER

An Improvised Spray Hood



A spray hood may be readily improvised for a small open launch out of a pair of sheer legs, which can be easily made by anyone, a pole and a rectangular piece of sail cloth, with lashings secured in the corners, as shown herewith. The forward end of the pole is made fast to the forward bitts or cleat of the boat, and the after end is carried on the crotch of the sheer legs. Then the cover is secured to screw eyes at the corners and to the forward end of the pole, as shown in the illustration. Grommets should be put in the edge of cover where the lacings come.

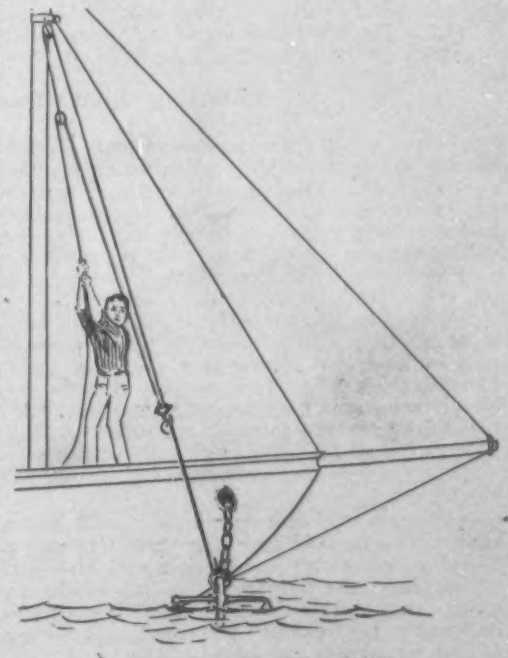
H. RELYEA.

To Get the Anchor Aboard

One of the most awkward things to manage on a high-sided vessel, whether sail or power, is getting the anchor aboard. In the large power boat this is usually managed by a cat-fall or anchor davit and hoist, but a far handier method for the windjammer (or power boat having a mast in the proper position) is shown in the accompanying cut.

Rig an anchor purchase from the hounds with free end enough on the hauling part so that the hook can be brought down near the rail. Then get a blacksmith to forge a hook in each end of a ⅜-inch iron rod, and your equipment is complete. When hoisting in, as shown in the ilustration, the anchor can be held out from the side and kept from scarring the same. The long hooked rod also does away with getting down on the bobstay to fit the hook of the falls into the eye of the anchor.

J. T. R.



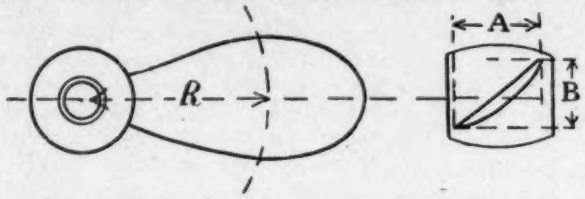
HOOK FOR CATTING ANCHOR

MESS ROOM TALK

IN this Department we will answer questions concerning the problems which boat owners are constantly running up against in the operation of their motors or the handling of their boats. Theoretical as well as practical questions will be answered promptly by mail, and when of sufficient interest will be printed for the benefit of YACHTING readers. This service is free. Don't hesitate to make use of it. Address, Information Department, YACHTING, 141 W. 36th St., New York City.

Pitch of Propellers

In the January issue we gave the following formula for the pitch of propellers: $P = \pi\ 2/3\ D \times \tan A$, where D is the diameter of the propeller and A is the average angle of pitch (taken at a point two-thirds of the distance from the hub to the tip of blade). The diameter of any wheel is known by the purchaser or may easily be measured, but the tan A (above) is not so readily determined. We advised our correspondent to determine it by the following method: Measure the fore-and-aft projection of the driving face of the blade and call the distance A. Then measure the perpendicular projection and call that quantity B (see figure). Then the tangent of the angle of pitch will be A/B, by simple trigonometric



definition. This quantity, A/B, may then be substituted for its equivalent (tan A), and the original equation becomes $P = \dfrac{2\pi D \times A}{3B}$.

The formula is workable in this form and has good authority. What we neglected to state, however, is that it is at best an approximate method, since the curvature of the blade face is ignored in making the projections and the point of mean angle of pitch is somewhat arbitrarily taken.

Another correspondent (unfortunately anonymous) has since called our attention to these facts, and asks further: "How can the mean pitch be accurately computed for any given wheel?" The two-thirds point taken above has been found by experience to have approximately the average angle of pitch in most standard working wheels where there is no radial increase in pitch. For propellers of special design, however, and for speed wheels which have the mean angle of pitch beyond the two-thirds point, we can only say that the sole positively accurate method for determining the mean pitch would be by actually taking the necessary measurements to determine the angle of pitch at a number of points equidistant from each other between hub and tip of blade, and then taking the arithmetic average of these values. An excellent new work on propellers, by Professor Peabody of the Massachusetts Institute of Technology, has just been brought out by John Wiley & Sons, of New York.

Blocking Up the Stern

BRIDGEPORT, CONN.

I have one of these one-design boats which they call the *Bird Class*. In hauling the boat out this fall, after taking the keel off, I left her lying on the cradle. The stern of the boat hangs out about 5 feet past the top of the cradle without anything to support it. What I would like to know is if there will be any danger of the stern sagging down and pulling the boat out of shape? Do you think it will do any harm to let the boat lie on the cradle over winter? H. J.

Why take the chance? It is a very simple matter to block up the transom. For a little boat like this a piece of 2-inch planking will do, with its lower end resting upon a stick of timber and a wedge pounded in to make a tight fit. It is possible that the bird would lie on the cradle all winter without hogging, but as a general rule it is a good scheme to have the ends supported—then you are sure.

Moorings and Other Things

NEW YORK.

I have a 52-foot power cruiser, with 3 feet 9 inches draft, of heavy construction, and with awnings both fore and aft, and will moor in about 7 feet at low water and 14 feet at high—soft bottom, protected harbor, except from the northwest. What weight permanent mooring, size of chain, length, etc., would it be advisable to use? Can you tell me the best way to rig mooring—whether by shackles only or swivels and shackles at both mushroom and buoy?

What hoist and fly should ensign, club burgee, private signal and jack have for a boat of this size? C. N. J.

In a well-protected harbor such as you describe (that is, if you do not keep your boat in the water late in the year, when you may expect hard northwesters) a mushroom anchor of from 400 to 500 pounds would be large enough, as we judge that your boat offers a good deal of windage. Three-quarter-inch chain would be about the right size for permanent moorings; 50 or 60 feet will be sufficient. You will need a shackle in both ends, the upper one for the riding line. The use of a swivel will keep the chain from "kinking," though it is not as necessary in a heavy chain as in a light one.

The approximate size of ensign for a 50-foot boat is 4 x 6 feet; burgee, 2 x 3 feet; private signal, 2 x 3 feet, and jack, 2¼ x 4 feet.

Sail Plan for Sloop

RACINE, WIS.

Please give me sail plan for sloop of 18 feet 4 inches waterline, 6 feet 1 inch wide and 26 inches deep. The mast is 5 feet from bow and centerboard is right back of the mast. The width of the boat at the mast is 5 feet. The boat is equipped with a motor weighing 75 pounds. The present sail is entirely too small. Would also like to know proper height of mast above deck and position of reef bands. Carries strong weather helm. J. A. C.

Mainsail—Area, 204 square feet; hoist, 12 feet 9 inches; foot, 16 feet; head, 10 feet 6 inches; leach, 22 feet 6 inches; diagonal, 19 feet 6 inches.

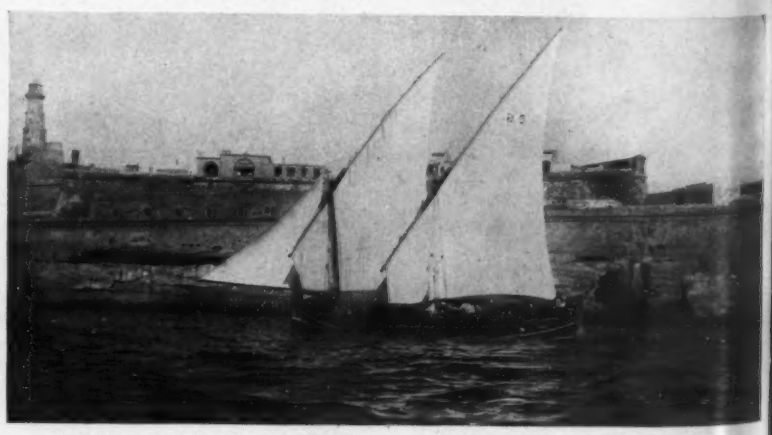
Jib—Head, 15 feet 10 inches; foot, 8 feet; leach, 13 feet. This will give a sail rather larger than the usual proportion between jib and mainsail, but this is done purposely to correct the excessive weather helm of which you complain.

In regard to ballast. While your boat has good beam, and could probably be sailed in moderate weather with no other weight than the engine and the crew, I think she would be stiffer and more satisfactory in a breeze if you had about 300 to 400 pounds of ballast in her, distributed along each side of the centerboard trunk and under the cockpit floor. Be sure that your ballast rests on the frames and not on the inside of the skin of the boat. Also that it is securely blocked in place, so that it cannot shift.

The bowsprit should be long enough to allow the jib to fit in the space between jibstay and mast, with about 3 inches clearance of the latter. With a 4-foot bowsprit your jibstay could be 6 inches from the end and still allow this clearance. So I think a rather shorter one would be better.

The height of mast for this rig ought to be 18 feet 6 inches above the deck. This allows for a space of 6 inches between the deck and the jaws of the boom, and also 6 inches of mast above the peak halliard block.

Two rows of reef points, 3½ feet and 7 feet, respectively, above foot of sail and parallel with it, are correct for the mainsail. One row of reef points is sufficient for the jib, and should be 3 feet above the foot. You will probably use your whole jib with a single reefed mainsail, as a sloop is inclined to carry a stronger weather helm as the breeze increases.



ISLAND OF MALTA FISHING BOAT, SHOWING DOUBLE LATEEN RIG

SILHOUETTE

A photograph of Silhouette as a 35-foot raised-deck cruiser appeared in this department in the September YACHTING. Since then the owner has practically rebuilt the boat, following the general plans of Mr. J. W. Scott's Teresa II, which were published in the May YACHTING. The owner is greatly pleased with the change, upon which he comments as follows: "We left out the clothes lockers in fore part of main cabin, and the spaces next the forward bridge deck bulkhead were used for a toilet room on one side and combined clothes and storage locker on the other. To provide ample ventilation a 4-inch hood ventilator was fitted in the deck forward of the galley, and two 5-inch galvanized sheet iron pipes run through the lockers in after cabin, each leading from the floor in engine room through the bulkheads aft, the heated air passing out of a 6-inch hood ventilator on deck. We found that in running in cool weather these were not needed, the temperature in engine room not becoming high, as the open space at the back and sides of main cabin steps provided ample ventilation. A hatch was built running fore and aft in the bridge deck and level with the floor, wide enough to hoist engine out of boat, which was found useful while fitting up the machine. We are much pleased with the very radical change made in the boat, and think the plan an almost ideal one, which a cruise will fully exemplify."

To Stop a Slight Leak

BRANDON, VT.

Will you please give me directions for the simplest way of making the floats of a shanty barge tight. The leak is slight but it is rather annoying to have to bail her out. B.

In regard to your inquiry concerning method of calking the floats of a shanty barge, I would advise you to use either one of the two following methods:

(1) Haul the boat out and when the immersed section has become entirely dry give same a thick coat of tar or pitch up to the waterline. This will harden on contact with the water, and should prove an efficient remedy for any leak which is caused merely by uneven seams or faulty calking.

(2) A rather more workmanlike, and also more difficult way, is to cover the floats with heavy canvas, in the fashion of a canvas canoe, and then apply several coats of waterproof paint to the canvas. Care should be taken to keep the covering smooth and even, both for the sake of appearance and in order that there may not be any air spaces between the canvas and the hull of the boat.

The chief practical drawback in canvas covering is that it is apt to become punctured if the boat is used in shallow waterways or chafed against docks and piers. But for a houseboat, which is moored in deep water, it is probably the more satisfactory way of the two.

Ground Tackle for 36-foot Yawl

WALTHAM, MASS.

What size chain would you advise using on a ninety (90) pound anchor, and what size manila rope would you advise using on a sixty (60) pound anchor? Also how many feet of each?

These anchors to be used on a thirty-six (36) foot extra heavy, high-sided yawl, 8 tons register, cruising in this vicinity from early spring to late fall. L. M. W.

We would advise 25 fathoms of ⅜-inch diameter chain cable for the 90-pound anchor on your boat, and 40 fathoms 1-inch diameter, four-part manila, for the light anchor. Chain cable need not have so great a scope as rope, because the sag which it takes, thanks to its weight, even under strain, brings a more nearly horizontal pull upon the anchor than the rode would do, and the anchor will therefore hold with a shorter scope than in the case of the rope.

While the length of cable given above would be excessive for a small boat cruising in Long Island Sound or other shallow waters, it must be borne in mind that when a boat goes to sea or cruises on a shore where the water is bold she is placing herself practically in the class of larger vessels and must alter her methods accordingly. For instance, it would not be difficult to pick at random places on the Massachusetts or Maine coast where even a small vessel might be forced to anchor in as much as 7 fathoms of water in order to avoid coming too close to the shore.

A Disparity Between Theory and Fact

MILWAUKEE, WIS.

I would appreciate it very much if you would kindly inform me if it would be advisable to extend the keel and rudder of my boat as shown by the dotted lines on the enclosed drawing. The heavy lines on the drawing show the keel and rudder as they are at present.

The boat formerly had a centerboard, but she acted very cranky, and I improved her a great deal when I put the keel and rudder on as shown by the heavy lines on the drawing. She still carries a good deal weather helm, especially during a stiff breeze. The keel is constructed of 5/16-inch sheet steel, with 300 pounds of lead riveted to the bottom of same. The proposed extension of the keel will also be made of 5/16-inch sheet steel and will weigh about 100 pounds.

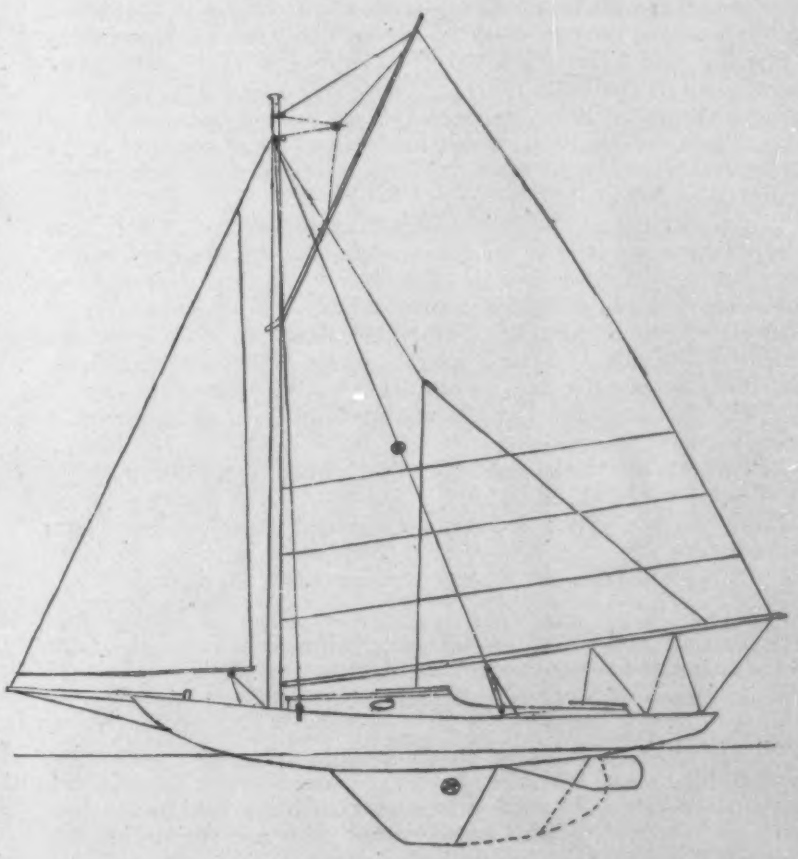
The boat is 23 feet 6 inches over all, 16 feet 6 inches waterline, 7 feet 6 inches beam, and carries 304 square feet of canvas in the main sail and 84 square feet in the jib.

I would be much pleased with any suggestions you can give me in regards to the matter or any other change that I could make to the keel and rudder that would increase the speed of the boat, as I am anxious to get all the speed possible out of her. C. O. H.

It is curious that your boat should carry a strong weather helm, because on checking up the centers I find that the C. E. of the sail plan lies a good 2 feet forward of the C. L. R. of the hull under the present design.

This ought to make the boat just about balance nicely; but, of course, you know by actual test whether she does so or not. While it is true that figures don't lie, it is equally true that there are other factors than the relation of the two centers mentioned above, which do much towards determining a boat's balance, such as the set of the sails, sharpness of the forward sections, etc.

The proposed rudder is certainly a much better shape for a sailboat than the present one, and the increase in lateral plane will make the boat easier to steer in any case, so if you know for a fact that she carries an excessive weather helm at present we would be inclined to advise you to go ahead and make the proposed change.



Mile-Record Trophy Finally Awarded

Five months after the races at Huntington Bay last summer for the mile-record trophy the controversy over this event has been settled and the trophy for it has been awarded. It will be remembered that in this race three boats started—Tech, Jr., Baby Reliance III and Panther Cub. The boats were raced six times over a measured nautical mile course, three times with and three times against the tide, under Admiralty rules. Tech, Jr., was announced the winner, the time for her first mile being said by the timers to be 1 minute and 11 1/5 seconds, or at the phenomenal rate of 58.3 statute miles an hour. The accuracy of this timing was questioned, particularly as not in any of her other miles did she come anywhere near equaling this speed, and motor boat men, as a rule, have been slow in accepting the record. However, the members of the Timers' Club, who did the timing, claimed that they were correct, and the rate made in this first trial was sufficient to make Tech, Jr., a winner over Baby Reliance III.

After an investigation, it has been admitted that the first mile was not properly timed, owing to a difference of 30 seconds in synchronizing watches at the two ends of the course. This being so, the board of governors of the Motor Boat Club of America, at a meeting held February 1, threw out this first race, and, consequently, all of the other miles in Tech, Jr.'s speed trial, the prize being awarded to Baby Reliance III, the second boat, owned by Mrs. Paula A. Blackton, which made an average speed of 37.12 statute miles for the six trials. The full report of the club on this matter is as follows:

"At a meeting of the Board of Governors of the Motor Boat Club of America, held at the Automobile Club of America, Saturday, February 1, at 4:30 p. m., the Race Committee reported the following regarding the International One Mile-Record Trophy contest, held at Huntington, September 4, 1912. Race governed by Admiralty rules. Time is average of six-mile trials, three with and three against the tide. Contesting boats and results:

"Baby Reliance III—32.243 nautical miles, or 37.124 statute miles.

"Panther Cub—20.94 nautical miles, or 24.112 statute miles.

"Tech, Jr.—Time not taken.

"Baby Reliance III is declared the winner of the Trophy. Time recorded by Timers' Club of New York.

The British International Trophy Race

Affairs for the coming races in England for the British International Trophy are gradually assuming definite shape. Word has recently been received from the Royal Motor Yacht Club giving some valuable details in regard to the forthcoming contest, the date of which has been fixed for about the second week in August. This will necessitate the trials being held in the fore part of July, and it behooves everyone who is building for this event to break previous records by having their boats ready on time.

One of the details in which these races will differ from those conducted in America is the fact that the course will be right-handed, leaving all marks to starboard instead of to port, as is the custom in this country. Owing to this fact the trial races will also be run right-handed, in order to make the conditions like those in the actual races. This change will necessitate some practice on the part of the helmsmen, and should be borne in mind whenever they are trying out their craft.

Another point which has been cleared up is in relation to the clause that both hull and engine must be built in the country which makes the entry. This was brought up through an inquiry from a Canadian motor boat man asking if a Canadian-built hull with British engines would be eligible to defend the cup for England. An opinion on this question was asked of the delegates of Germany, France, Holland, Sweden, Italy and the other countries interested, the consensus of opinion being that, for the purposes of such competition, Canada must be considered a separate country.

Mr. Mackay Edgar, owner of Maple Leaf IV, which won the trophy last year, is at present in this country. He has stated quite freely that he believes that America will bring the trophy back next year. Mr. Mackay Edgar is evidently something of a "jollier."

Buying a Boat

With the first days of March the virus that runs in every true sailor's blood gets to work and sets him to thinking of summer sailing plans, with the consequence that March marks the opening of the buying season. Knowing that every man who wants to buy a boat commences looking for one as soon as the spring sun begins to shine on both sides of the fence, it is natural for those that have boats to sell to place them on the market at this season.

It is, therefore, fitting that we should run a special Boat-for-Sale issue at this time of the year, and in this number of YACHTING will be found several hundred boats advertised by their owners for one reason or another, but principally because they want something different or larger themselves. The pages devoted to these advetisements make mighty interesting reading, and all you sailormen who want a boat, whether it be sail or power, will do well to study these pages carefully. Pick out what you want, hunt her up, and get your deposit down. There is an unusually good market for boats this spring, and, judging from past experience, a very large percentage of the boats advertised each year are sold. Therefore, it behooves you not to let barnacles grow on your keel, but to get a "jump" on and act quickly. The good ones and the bargains are snapped up first, and you want to be one of the fortunate ones.

Also, do not size up a boat entirely by the picture of her. The photographs sent in by some of the men that own really good boats are scandalous—we have to do the best we can in reproducing; but even at that, in some of the pictures you couldn't tell a really good boat from a North River car float.

Here's hoping you all get suited, whether it be a 12-foot sailing dinghy or a 100-foot power yacht, and find yourself afloat by the end of May!

The April Issue Will be the Annual Fitting-Out Number—One of the Most Interesting of the Year—DON'T MISS IT!

Driftwood from Alongshore

THE HOME OF THE NEW HAVEN YACHT CLUB

Under Construction in the Yards

A new 31-rater for J. B. Greenough, owner of Onda II, is being built at the yard of W. Starling Burgess, Marblehead. It is reported that orders will soon be given for two more boats of the same class.

The Reliance Motor Boat Company is planning a hydroplane which will be able to do 50 "real miles" an hour.

Howard S. Kerner, of Great Barrington, Mass., is having built at a Philadelphia yard a power cruiser for Florida waters of 72 feet over-all length, 16 feet beam and only 4 feet draft.

Bowes & Mower, of Philadelphia, have recently completed designs for a challenger of the R Class to compete in the Royal Canadian Yacht Club races next summer. She will be owned by a syndicate headed by Judge Reeves and Mr. Herrick, of the Crescent Yacht Club, of Watertown, N. Y. A new American sonder boat is also being designed for C. M. Wood, of Boston, and a challenger for the Taft Cup on the Great Lakes is under way for John T. Rohr, a Toledo banker.

A 45-foot waterline yawl is under construction for Mr. Richard S. Storrs, of New York, from designs by B. B. Crowninshield. The Gas Engine & Power Company and Chas. L. Seabury & Company, Con., are building a steam yacht of 168 feet over-all length for Mr. John D. Archbold, N. Y. Y. C. Designs by the builders.

Wilbur H. Young, of 133 Liberty Street, New York City, is building a 26-foot hydroplane designed by F. K. Lord. It is to be equipped with a 175-horsepower, eight-cylinder Van Blerck motor.

Mississippi Valley Power Boat Association Year Book

This interesting little volume, which has just been gotten out, tells the history of the organization whose name it bears from a federation of five small yacht clubs in 1907 to the important place which it holds in the motor boating world to-day, with the names of thirty-one leading yacht clubs of the Mississippi Valley on its roster.

This is a step, and a long one, towards the centralizing of power boating in this country which is so essential if regattas are to be held under uniform rules and regulations. The M. V. P. B. A. has done good work for the cause of power boating and we heartily wish it Godspeed.

Elections of Officers

Commodore Reuben K. Dyer was re-elected to his seventh term at a meeting of the Portland (Maine) Yacht Club, held recently. Other elections were as follows: Vice-commodore, Vernon F. West; rear-commodore (power boat division)—Holman F. Day; secretary, Frank W. Wardwell; treasurer, Warren A. T. Hunt; fleet captain, George C. Orr; regatta committee, Joseph Thompson, Emery G. Wilson, Percy Keating, Harold Swett, Arthur Smith. A motor boat division has been inaugurated for the coming season.

The board of directors of the Buffalo Motor Boat Club unanimously elected William J. Conners commodore for 1913 at the annual election and banquet on January 20. These directors were elected: John J. Boland, A. E. Brock, Herbert I. Sackett, Ward A. Wickwire and Eugene A. Wolff.

The nominating committee of the Southern Yacht Club (New Orleans) has announced its list of officers for the coming season as follows: Commodore, Samuel F. Heaslip; vice-commodore, Alfred F. Landry; rear-commodore, Fernand F. Farrell; fleet surgeon, Dr. A. A. Pray; measurer, C. G. Ferguson; governing committee, William Allen, T. R. Falvy, Holmes Harrison, John Legier, Jr., and L. A. Morphy.

The Corinthian Yacht Club of San Francisco will have the following officers this season: Commodore, H. E. Picker; vice-commodore, J. F. Campbell; secretary, H. W. Westerfeld; treasurer, C. Morel; port captain, J. H. Keefe; directors, W. Hogg and Gus Dorn; regatta committee, Robert Dean, Clarence Dobbie and F. Webster.

R. C. Pell has been named to succeed James F. Lanagan as commodore of the San Francisco Yacht Club. The latter refused to accept a second term because of a pressure of business. Pell's flag will fly on the Vixen for the first two months of the season, but after that time there will be a new flagship. The other officers nominated were C. P. Carruthers, vice-commodore; Jack Russell, secretary; J. B. Lowe, financial secretary; Gordon Thompson, treasurer; William G. Morrow and Frank Garden, directors.

The Corinthian Yacht Club, of Marblehead, Mass., has elected Charles B. Wheelock commodore for the third time in as many years. Other choices are as follows: Vice-commodore, J. B. Fallon; rear commodore, Lawrence F. Percival; secretary, Herbert S. Goodwin; treasurer, F. W. Moore; executive committee, John M. Ward, Andrew Raeburn.

Arthur W. Chesterton has been elected commodore of the Boston Yacht Club. Other officers chosen are: Vice-commodore, Roger Upton; rear-commodore, Dr. Samuel Crowell; secretary-treasurer, Walter Burgess; executive committee for two years, Alfred Douglass, William L. Barnard, A. H. Van Pelt, Winfield M. Thompson; regatta committee, chairman, one year, T. W. Powers; members for two years, F. P. Huckins, W. H. Litchfield, H. Lundberg, F. H. Borden.

Officers of Byram River Yacht Club, of Portchester, N. Y., for 1913: Commodore, Dr. Swepson J. Brooks; vice-commodore, Daniel Koehler; rear commodore, Arthur E. Chandler; fleet captain, Charles H. Ellis, Jr.; fleet surgeon, Dr. William J. Sheehan; secretary-treasurer, Louis C. A. Lewin; trustees for two years, Warren J. Martin and Joseph Kapp.

The annual meeting and election of officers of the Corinthian Yacht Club, of Baltimore, Md., was held January 17, when officers were elected as follows: Commodore, Graham Eckel; vice-commodore, William H. Evans; rear-commodore, W. W. Varney; secretary, Calvin D. Swank; measurer, H. C. MacRae.

Officers for 1913 of the Fall River (Mass.) Yacht Club: President, Jabez Wilkinson; commodore, William E. Fawcett; rear-commodore, James Conn; secretary, Frank Rivers; treasurer, Charles H. Davis; regatta committee, William Ferguson, Jr., H. A. Rivers, Edwin H. Wilkinson, Thomas Kessell, Charles Goldblatt.

The City Island (N. Y.) Yacht Club is now located in its new quarters facing Long Island Sound, and extends an invitation to all yachtsmen and motor boat owners when nearby to stop in and pay a friendly visit. The following officers will serve this season: Commodore, Theo. Kaufer; vice-commodore, W. A. Walters; rear-commodore, J. C. Stark; secretary, C. T. Strassle; treasurer, C. Melville; measurer, R. Purdy.

The regular monthly meeting and the annual election for officers of the Bergen Beach Yacht Club, of Brooklyn N. Y., was held on Tuesday evening, February 4, and the following officers elected: Commodore, Henry J. Hildebrand; vice-commodore, George H. Hopper; rear-commodore, Louis F. Sandkaut; secretary, Fred. C. Haab, Jr.; treasurer, A. E. Wheeler; measurer, Charles A. Merritt.

New Rochelle (N. Y.) Yacht Club elections: Commodore, M. W. Houck; vice-commodore, J. A. Mahlstedt; rear-commodore, John F. Lambden; secretary, C. A. Marsland; treasurer, Henry M. Lloyd; regatta committee, George P. Granbery, H. L. Stone, P. C. Pfeiffer.

John H. Bromley has been elected commodore of the Philadelphia Yacht Club for 1913. Other officers: Vice-commodore, Philip H. Johnson; rear-commodore, Bernard Bloch; measurer, Alexander G. Rea; race committee, John McAvoy, Otto Robert Heiligman, George T. Gwilliam.

Prospects for the Bermuda Race

It looks as if the Bermuda Race will again be started in the Delaware River off Philadelphia next summer, as the Yachtsman's Club, which worked so hard for the contest last year, and which deserved better success in the number of starters, is working hard for the 1913 "hike." Commodore Lagen, this year's head of the Yachtsmen's Club, was one of the two starters and the winner of last year's event, and is very enthusiastic over the proposition. The Commodore has the deep-water fever, and says that he will not only go again this year but will build for a transatlantic race when one is pulled off.

It is stated at this writing that two Philadelphia boats are sure to start this year, while negotiations are on looking for the entry of a New York boat and one from a Western owner who is having a boat built in the East this winter. The race will be moved back to June this year, better weather being more likely in that month than the last of July or August.

Officers for Orange Lake Ice Yacht Club

At a meeting held at Orange Lake, N. J., the following officers were elected for the coming year: Homer S. Ramsdell, commodore; Henry J. Jova, vice-commodore; George A. Morse, secretary and treasurer; regatta committee, George Mason, Dr. Willett A. Kidd, Dr. Harry Barnum.

Racing Dates Announced

The real bit of news brought out at the third annual banquet of the Maryland Motor Boat Club, held recently, was the fact that the organization intends to hold another 200-mile race on Chesapeake Bay next summer. This race has been much talked of since the last affair was such a success, and there is every evidence that a record-breaking list will be received when the proper time arrives.

The Delaware River Yacht Racing Association has arranged its schedule of regattas for the season as follows:

June 20 and 21—Association championship race for cabin cruises; Camden Motor Boat Club to Overfalls Lightship and return.

June 28—Association championship race for glass cabin yachts; course from Wissinoming Yacht Club to Trenton Yacht Club.

July 12—Du Pont trophy race for cruisers; Wilmington Yacht Club to Ship John Light and return.

July 19—Association championship race for open boats and runabouts, starting and finishing over the course off the Anchor Boat Club at Bristol.

July 26—Camden Motor Boat Club open race for cruisers; course to Reedy Island and return.

August 1—Association championship race for cruisers; course, Keystone Yacht Club and finish at Cape May.

August 9—Delaware River race for speed boats; course off club house at Torresdale.

August 16—Flat Rock motor boat annual race for speed boats over Flat Rock course.

August 23—Association championship race for speed boats over the Delaware River course; starting and finishing at the Bridgeburg Yacht Club.

September 6—Association championship race for special trophy for speed boats over 36 nautical mile course, starting and finishing at the Columbia Yacht Club.

September 10—Association championship race for special trophy for cruisers; course West End Club, Chester, to Ship John Light and return.

September 20—Farragut Sportsmen's Association races.

October 4—Norristown championship speed boat race over Norristown course.

Recent Sales and Charters

The following sales and charters have been made this winter by Messrs. Tams, Lemoine & Crane, of New York City, who report the yachting market more active at this season than it has been for a number of years:

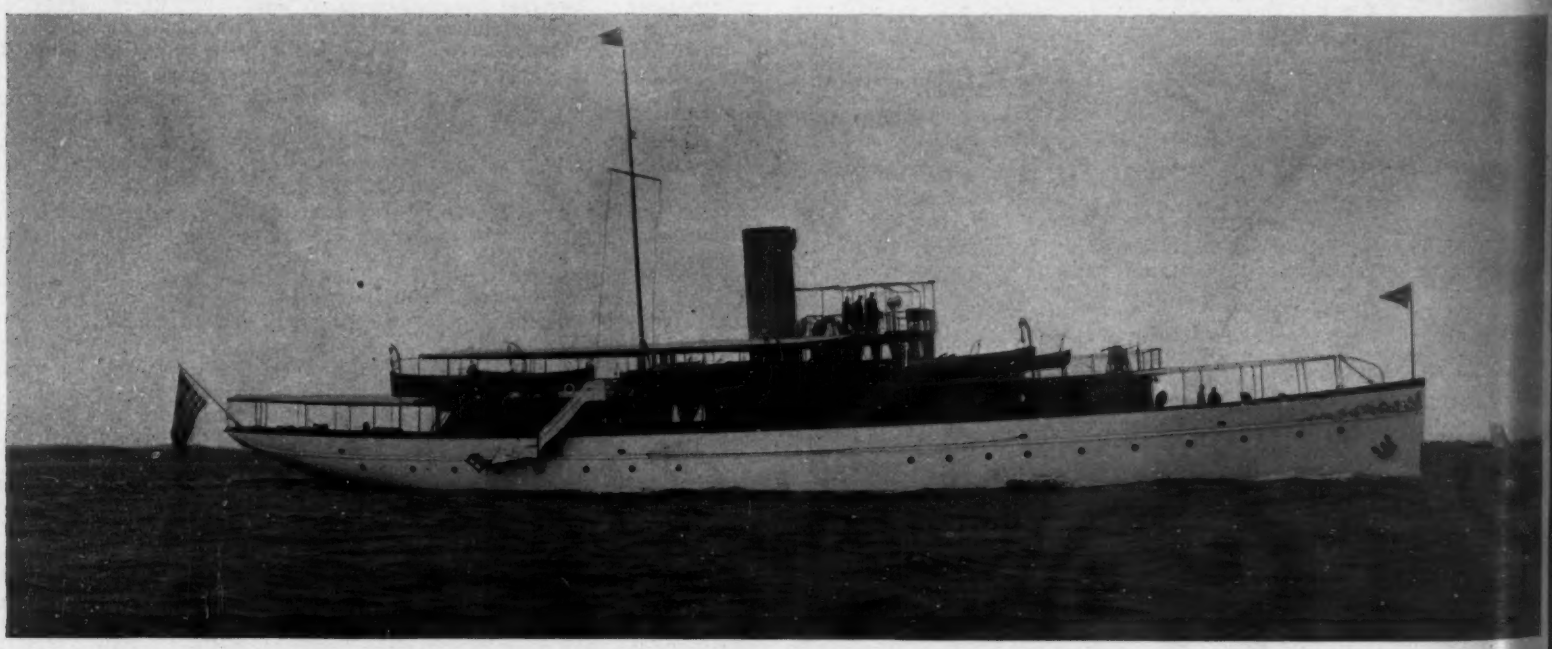
The 85-foot waterline motor yacht Jessica has been sold for Mr. Joseph McDonough to Mr. P. L. Atherton, of Louisville, Ky. The 55-foot motor boat Ulana has been sold for A. E. Miller to Mr. S. L. Perez, of Buenos Ayres, Argentine. She is now at Morris Heights undergoing extensive alterations. The motor yacht Heroine has been sold for Mr. F. B. Riggs to Mr. C. A. Cooley. The 80-foot auxiliary schooner yacht Crusader has been sold for Mr. William A. Drayton, of the New York Yacht Club, to Mr. C. D. Vail, of Lynbrook. The 67-foot auxiliary yacht Stalwart has been sold for Dr. B. Farquar Curtiss, of Hyde Park, to a prominent yachtsman. The 35-foot waterline racing sloop yacht Dorwina has been sold for Mr. Edmund C. Ray to a prominent racing yachtsman. She will probably be in commission next year.

Mr. W. J. Mathewson, of the New York Yacht Club, has just purchased a new twin-screw 75-foot houseboat from the Mathis Shipbuilding Company, of Camden, N. J. This boat is practically a duplicate of Commodore Arthur Curtiss James' Lanai.

The Hollis Burgess Yacht Agency, of Boston, Mass., has sold the 35-foot waterline sloop yacht Irex, owned by William S. Kinney, of Boston, to Alexander P. Graham, of Boston.

The same agency has sold the 40-foot motor boat Gold Plate, owned by C. M. Dunbar, of Providence, R. I., to Walter M. Nichols, of Winthrop, Mass.

Mr. Winfield M. Thompson, of the New Rochelle Yacht Club, has sold the motor yacht Buz Wuz to Mr. L. D. Willis, of New York City.



THE 180-FOOT STEAM YACHT CRISTINA, DESIGNED BY MESSRS. GIELOW & ORR FOR MR. F. C. FLETCHER, OF BOSTON

THE DECORATIONS AT THE SHOW

The 1913 Motor Boat Show at Madison Square Garden

A Description of the Boats, Engines and Accessories Exhibited There

FOREWORD

IN undertaking the management of the New York Motor Boat Show the second time, the National Association of Engine and Boat Manufacturers set themselves to a difficult task in equaling the wonderfully successful Show of 1912. That they had "made good" was apparent to everyone Saturday afternoon, February 15, about 3:30, when the Show was opened by the Secretary of the Navy, Mr. George Von L. Meyer.

From then on, during the following week, the Show again demonstrated that it was the principal attraction of the year in the boating world, and had lost none of its popularity with those interested in things nautical. Not only were the spectators intensely interested in the exhibits, showing a keen appreciation of the finer points of the boats, engines and operating devices that were seen there, but most of them have been educated up to a point where they really appreciate good workmanship and what the standard of boat and engine construction should be.

Not only that, but the Show has come to be the Mecca towards which all yachtsmen journey, and is the meeting place of those interested in boating—a place where one is sure to see, once a year, his boating friends, no matter from what part of the country they come. The Great Lakes, the Mississippi and tributary waters and the Pacific Coast all had their representatives at the Show, rubbing elbows with the power boat men and yachtsmen of New England and the South.

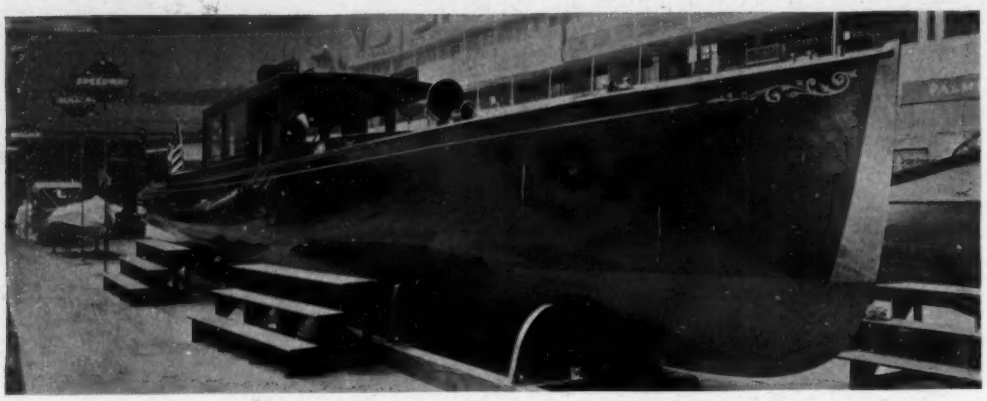
The exhibits, as a whole, were distinctly high-class, and showed a marked improvement over those of the past, thus indicating that the manufacturing field, as a whole, is becoming better organized and that the individual builders are keeping abreast of the rapidly increasing improvements in design, refinement and equipment. There was a noticeable improvement in hull construction, which was evidenced by the fact that there were more boats conforming to the high standard of our best builders and fewer boats showing the less refined and somewhat rough work of the past.

One suggestion that may not be out of place in regard to the exhibits as a whole is that possibly the tendency among manufacturers and builders is to over-emphasize the small, high-speed model and to specialize on boats of the automobile type, if one may call them that. It seems to us that more people are interested in a small cruising boat than they are in a small runabout or high-speed boat, yet stock boat manufacturers devote most of their energies to the latter type of craft, over-emphasizing the racing and speed end of the sport. There were but very few cruising boats seen at the Garden this year, yet the indications were that the majority of those that visited the Show were more interested in cruising boats than in speed boats. We say this, knowing the difficulties in the way of building, selling and exhibiting a cruising boat of stock design; yet it does seem to us that the manufacturers are over-estimating the interest in purely speed boats.

The attendance at the Show was excellent and gave evidence that the coming season afloat is to be one of the best that we have ever seen in this country. A list of the exhibits in boats, engines and accessories will be found on the following pages.

The Boats at the New York Show

Keep this Special Review of 1913 Products for Reference Purposes Throughout the Year. It Will Prove of Value to You



54-ft., high-speed day boat of the Gas Engine & Power Co. and Chas. L. Seabury & Co., Consolidated

A Fine Fleet of Speedway Boats

The largest boat at the Show, and one that attracted an unusual amount of attention, both by reason of its size, workmanship and high finish, was the big 54-foot high-speed day boat of the Gas Engine & Power Company and Chas. L. Seabury & Co., Con., whose exhibit was one of the most attractive at the Show. This boat is an exceedingly fine example of the boat builder's art, and was designed for a fast day boat with a shelter cabin luxuriously furnished.

The dimensions are: Length over all, 54 feet; beam, 7 feet; draft, 3 feet. She is fitted with a 200-horsepower, six-cylinder Speedway gasolene engine, which gives a guaranteed speed of 23 miles per hour. This engine is installed under hoods forward. Just abaft of this engine compartment is a steersman's cockpit, on the forward bulkhead of which is the entire engine control. At the after-end of the cockpit are seats for passengers. Abaft of this cockpit is a glass-sided trunk cabin, the roof of which extends forward over the cockpit just mentioned. The cabin is fitted with transoms, buffet, chairs, etc. Aft of the cabin is a large open cockpit fitted with easy chairs.

The gasolene tank is under the after trunk, and the feed pipe is carried to the engine on the outside of the hull, which is the regular Seabury practice.

Another interesting boat was a big 30-foot mahogany monoplane, with 7 feet 6 inches beam, designed for Carl G. Fisher. This boat was equipped with a six-cylinder, 8 x 8 Speedway engine, 200 horsepower, and very high speed is expected. The steersman's cockpit is in the extreme after end. This boat is one of the biggest monoplanes we have ever seen.

Other Speedway boats were a 30-foot mahogany yacht tender and a 30-foot Speedway runabout, in each of which is an 18-22-horsepower Speedway engine, and a little 21-foot yacht tender with a 12-16-horsepower engine. A number of Speedway engine outfits were also shown, including a 125-165-horsepower, six-cylinder, and a 50-60-horsepower, six-cylinder, while the three-cylinder electric generating outfit was particularly interesting.

A Hand V-Bottom Boat

Mr. William H. Hand, Jr., of New Bedford, Mass., who is practically the originator of the V-bottom type as applied to power boats, exhibited one of the finest boats in the New York Show in a 24-foot V-bottom runabout, built by Lawley & Son, of Neponset, Mass. This boat, called the Voodoo, has 5 feet 6 inches beam, 20 inches draft, with a 30-horsepower, four-cylinder Loew-Victor motor. A speed of 24 miles an hour is guaranteed. The boat has very fine lines, and is built to Lawley's highest grade of construction, the combination making a very attractive outfit.

The engine is installed under a hinged hood just forward of amidships, being bulkheaded off from the large after cockpit. This forward deck is raised slightly, giving rather a raised-deck appearance to the boat, and a V-shape washboard is

The Hand-Lawley V-bottom runabout. Speed 24 miles

carried on it just forward of the engine hatch. The boat not only has the appearance of speed but also of great ability and weatherliness, and she should make an ideal fast runabout that could be used in water which the ordinary speed boat or small launch could not negotiate.

A number of these boats have already been sold, and further particulars may be had by writing William H. Hand, Jr., New Bedford, Mass., mentioning this magazine.

A Lawley Runabout and a New Heavy-Duty Motor

George Lawley & Sons, Corporation, of Neponset, Mass., exhibited at the big motor boat shows this year. The boat they had at the Garden as a sample of the Lawley standard construction was a 30-foot, double-planked, mahogany runabout, somewhat similar to the boat that made such a hit at the New York and Boston Shows last year. The present boat was somewhat more elaborate in finish and the fittings than the 1912 craft. She was equipped with a 40-horsepower Loew-Victor motor, with a Gray & Davis electric starter. She was fully equipped with electric lights, glass wind shield, automobile top and nickel-plated trimmings. Her speed is about 18 miles an hour, and her builders write that in trying her out about two weeks ago she was started every time on the electric starter.

They also had a 13-foot launch, mahogany trimmed, planked with cedar, lap-strake construction, equipped with a 3-horsepower Fulton motor.

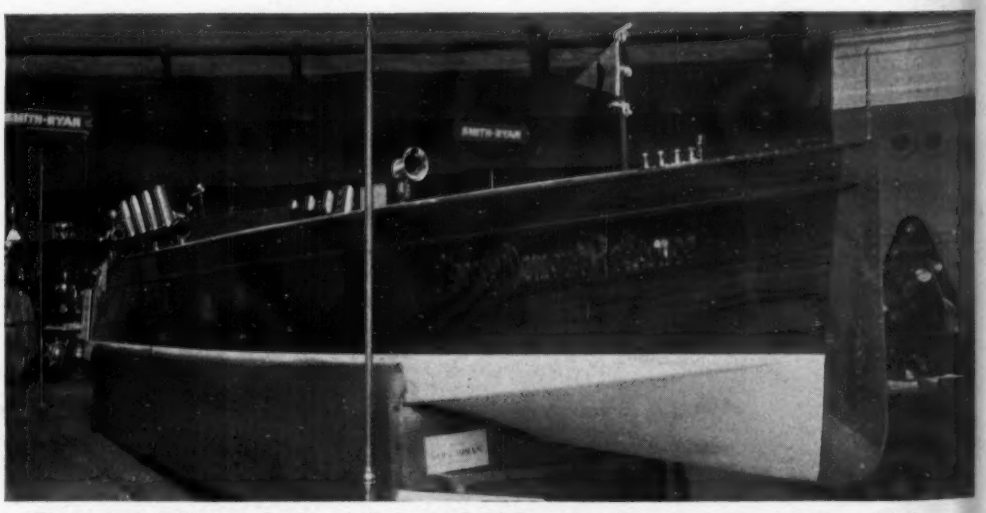
In addition to these boats the Lawley Company had one of their heavy-duty gasolene motors which they placed on the market last year. This is a four-cylinder, 6½-inch by 9-inch engine, which develops 40 horsepower and 350 revolutions per minute.

New Reliance Hydroplanes

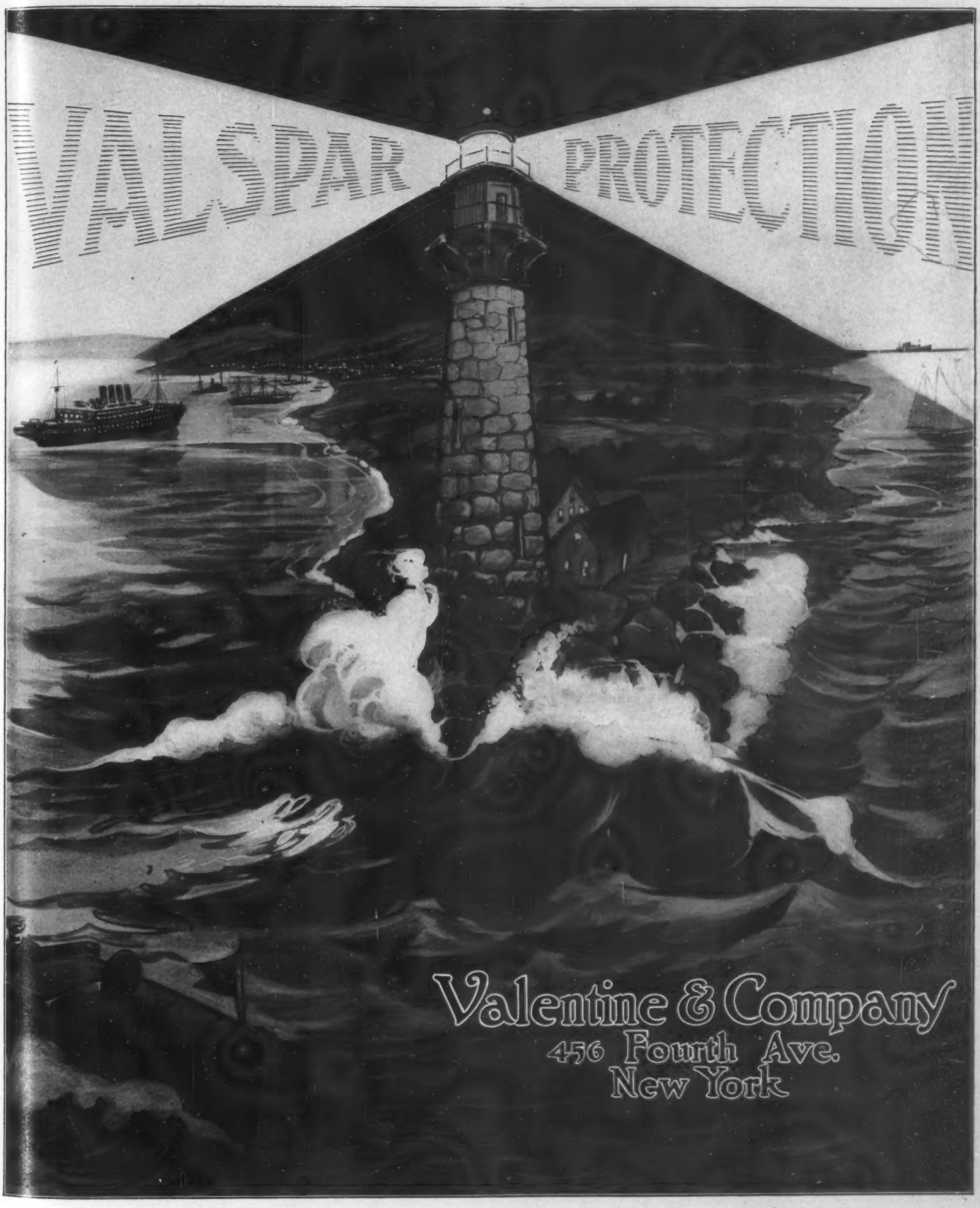
The two boats which the Smith-Ryan Boat Company, of Algonac, Mich., exhibited at the Show attracted so much attention that it is said, on good authority, that the carpet of their space was completely worn through around the boats. This company is the producer of the famous Baby Reliance family of last year, and the two new boats which they exhibited at Madison Square Garden, while bearing some of the earmarks of last year's boats, were in many respects radical departures from the older type. The largest of these boats was a big hydroplane called the Speed Demon Reliance, built for Commodore J. Stuart Blackton. This boat was of mahogany, 38 feet 10 inches long over all, and was equipped with two 350-horsepower motors, turning twin screws, with which the company confidently expects to obtain a speed of 65 miles an hour.

The boat was a fine piece of work, both construction and finish being of the best. She is a big boat, and the company claim that she will do well in a sea. Besides the steersman's seat there are seats for two passengers in a small cockpit aft.

The other boat shown was a little 20-foot hydroplane runabout called Queen Reliance. This boat



The big 39-ft. Reliance hydroplane, built by the Smith-Ryan Boat Company for Com. J. Stuart Blackton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M. V. P. A. at Davenport, July 4, 5 and 6

Mississippi Valley, 20-foot Championship	Baby Reliance II
Mississippi Valley, 26-foot Championship	Baby Reliance II
Mississippi Valley, 32-foot Championship	Baby Reliance II
Mississippi Valley. 40-foot Championship	Baby Reliance II
Mississippi Valley, Mile dash (at rate of 53.7 miles per hour) Championship	Baby Reliance III

W. P. B. A. at Chicago, August 10 to 17

26-foot Championship, Weckler Trophy	Baby Reliance II
40-foot Championship	Baby Reliance II
Wrigley Trophy	Baby Reliance II
Championship Mile trials	Baby Reliance II

Huntington Bay, August 31

First Heat British International Race	Baby Reliance II

At Buffalo, September 13, 14 and 15

Great Lakes, 32-foot Championship	Baby Reliance II
Great Lakes, Free-for-all	Baby Reliance II
Interlake Championship	Baby Reliance II
Championship Mile Trials	Baby Reliance II

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Questions.	Our Answers.
When was 40 miles of Official Speed made?	Several times.
Where?	Several places.
What Boats have you defeated?	We have defeated all of them.
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YOU WILL LATER ANYWAY

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THE BOATS THAT HAVE WON

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DEPARTMENT Y

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THIS year you must come to us for speed. We have shown that we can deliver the goods. We hold all official world's records from 1 to 35 miles regardless of size of boat or horse-power.

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Duplicates of Baby Reliance II Now in Stock
Official Speed 51.50 Miles per Hour
Our Positive Guarantee 47 Miles per Hour

For further information write us

SEE US AT THE BOAT SHOWS

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Now, that we hold all official world's records from 1 to 35 miles, regardless of size of boat or horse-power and have patents pending on our principals, we are offering a limited number of blue prints and specifications of Champion Baby Reliance II. We also will furnish full size accurate patterns of the stem, stern, step, keel and forms, or, the stem, stern, step, keel and forms with stock for ribs cut and accurately fitted ready to put together.

Prices from $25.00 for plans and specifications to $125.00 for knock-down forms. For further information write us.

We are in no way affiliated with the Reliance Boat Co., of New York

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THE BOATS THAT HAVE WON

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BOAT AND ENGINE CO

ALGONAC MICHIGAN.

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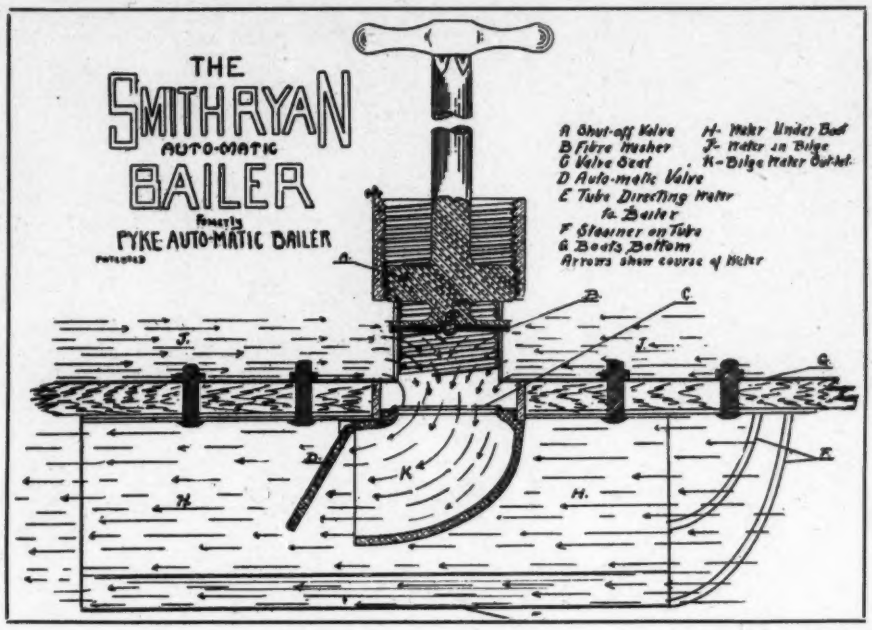

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was also built of mahogany, and was handsomely fitted with six heavy leather chairs for passengers. The beam is 5 feet 6 inches, the boat being a combination runabout and racer. The engine is installed under a hood forward. The engine at the Show was a a 6-cylinder, 75-horsepower Sterling. While greater power can be installed, the company guarantees this boat to do from 30 to 50 miles an hour, according to the power carried. Mr. Ryan, of the Smith-Ryan Boat Company, states that the boats are exceedingly dry and comfortable when traveling at a high speed, and are absolutely safe.

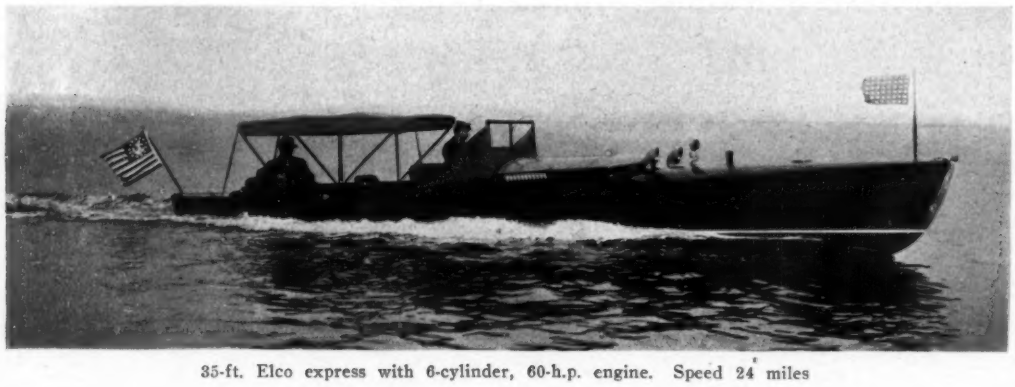
These two boats are merely indicative of the Smith-Ryan line for 1913. Some of those to whom the company sold boats at the Show are Colonel Max. Fleischman, of Cincinnati, a duplicate of Baby Reliance II; Edward Webster, of Boston, Mass., a duplicate of Queen Reliance; Charles Dalmores, a duplicate of Queen Reliance, for use on Lake Geneva, Switzerland, and a number of others.

Some Elco Boats and Engines

Among the cruisers at the Show those which attracted particular attention were the 36-foot double-cabin boat and the big 45-foot cabin cruiser of the Electric Launch Company, of Bayonne, N. J. The 36-foot boat, which was exhibited in the space of the Standard Motor Company, was a very business-like and useful little craft, having a flush-deck cockpit amidships, at the forward end of which was the steering wheel and engine control, with seats at the after end. Over the after half of the boat was a raised cabin trunk with glass windows, the cabin having sleeping accommodations for three people, with lavatory, lockers, buffets, etc. The engine is installed under the cockpit deck, while the forward cabin is given up to galley, ice-box, work bench and transom, with pipe berth above it. The dimensions are 36 feet over all, 8 feet 8 inches beam, and 2 feet 4 inches draft.

The larger boat is 45 feet in length, of the raised-deck type, with a flush deck cockpit amidships and a large after deck. She was a very handsome boat of fine model and powered with a Standard engine.

The usual line of high-grade Elco express launches and runabouts was also shown in various sizes, the engines being installed forward of amidships under a hinged hatch. The 20-foot Elco "Bug," such as was exhibited last year, was also shown. With a 60-horsepower engine a speed of 35 miles an hour on these boats was guaranteed, and with a 150-horsepower lightweight Sterling racing engine a speed of 45 miles is guaranteed.



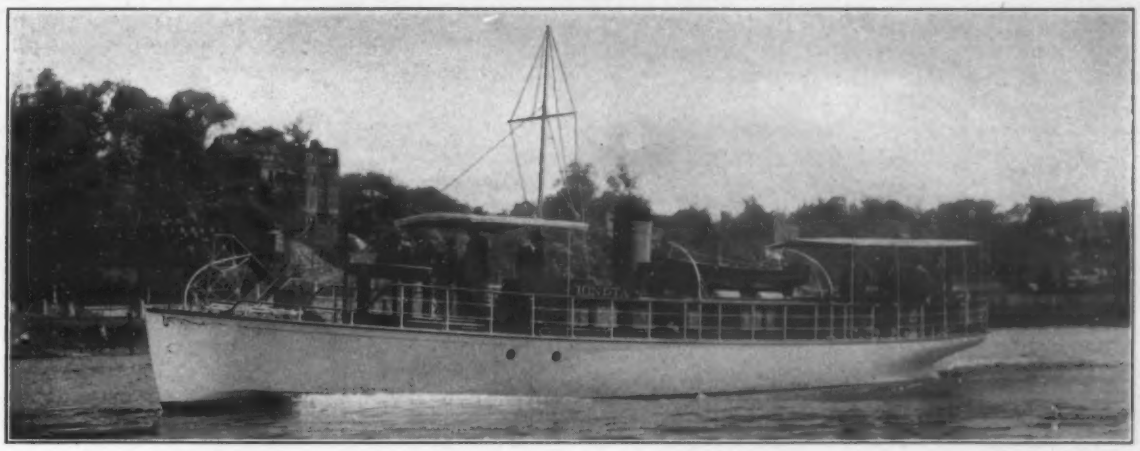
35-ft. Elco express with 6-cylinder, 60-h.p. engine. Speed 24 miles

Seabright Dories

There are a great many people who want a strong, well-built, able motor boat that will stand any kind of rough water, for use in fishing or in localities where there is no sheltered water. Down on the Jersey beach there has been developed a type of boat suited for just this purpose, with the addition that it is designed so that it can be launched and beached through the surf. These boats, called Seabright Dories, have become known the country over for their seaworthy qualities, and one of them was exhibited at the Show by her builder, Henry E. Keller, of Long Branch, N. J.

This boat is 20 feet over all, 5 feet 6 inches beam, and is a deep, roomy, able boat with plenty of sheer. At the same time she is not excessively heavy, being planked with 5/8-inch cedar, fastened with copper and brass fastenings throughout. She is equipped with a 4-horsepower Bridgeport motor, installed under a box hatch aft of amidships, and was easily one of the attractions of the Show, being a *real* boat. The makers claim that these boats will ride a surf and land a load of fish in a sea that would smash to pieces an ordinary craft. The price is exceedingly moderate for the size and quality of the boat.

Yachts and Launches
Steam Boilers and Engines
Speedway Gasolene Engines



Com. A. B. Waring's Twin-Screw 65 Foot Speedway Yacht "Ioneta." Moosehead Lake Yacht Club.

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A Mullins Steel Monoplane and Steel Boats of Many Types

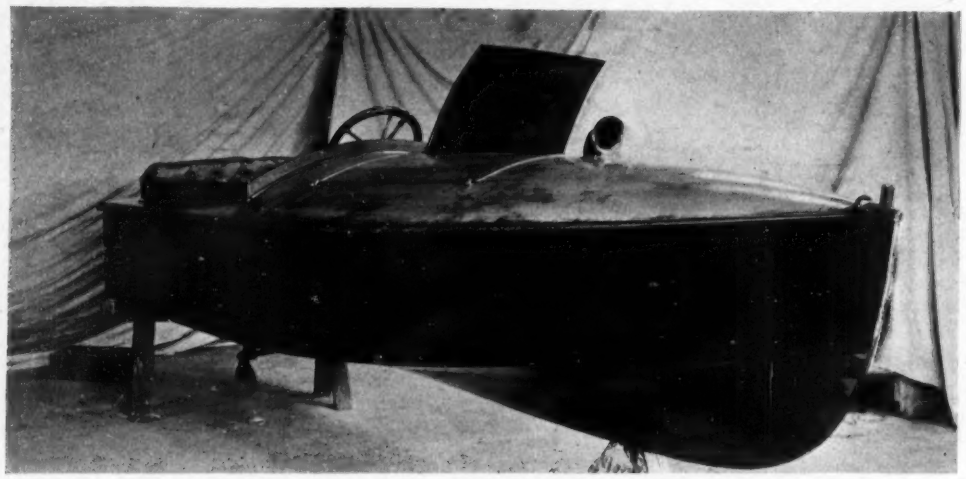
An extremely interesting boat, and one of the distinct novelties at the Show, was a little 16-foot, 25-horsepower steel monoplane, made by the W. H. Mullins Company, with a guaranteed speed of 28 miles per hour or no sale. The hull is built of rigid, puncture proof steel plates, on the same method as is employed in the regular Mullins steel hulls, which are now well known. It is securely braced and strengthened by an interior framework of the best selected, clear grained oak, to which the engine foundation of heavy and substantial oak timbers is securely fastened.

The motive power consists of a Pierce-Budd three-cylinder, 18-25-horsepower, high-speed engine, equipped with high-tension magneto, reverse clutch, Mullins rear starting device, etc.

The great difficulty with the average racing boat is that the excessive vibration of the engine racks it and opens up the seams. The Mullins Company claim that their steel monoplane never opens at the seams, and is guaranteed against leaking.

The dimensions of the boat are: Length, 15 feet 11 inches; beam, 52 inches; draft, 17 inches; seating capacity, 3; net weight, 950 pounds.

Other Mullins boats at the Show were a 26-foot luxuriously appointed auto-boat, equipped with a 30-horsepower Loew-Victor engine; a 20-foot auto-boat, equipped with a Ferro 8-horsepower, two-cylinder engine, making a very attractive small runabout outfit; an 18-foot Leader launch, equipped with a 6-horsepower, two-cylinder engine, and a little 16-foot Special launch, powered with a 3-horsepower Ferro motor. All of these



16-ft. steel monoplane of the W. H. Mullins Co., which has a guaranteed speed of 28 miles on 25 h.p.

boats are of the Mullins steel construction, and are fitted with Mullins silent under-water exhaust. They are also fitted with air-tight compartments to prevent their sinking.

Rice Runabouts and Yacht Tenders

The fleet of 1913 boats of Rice Bros. Co., of East Boothbay, Me., is a particularly attractive one for those looking for a well-designed, well-built and handsome runabout or small launch at a moderate price. One of the newer boats which this company has brought out is a small 17-foot family launch built to sell at a low price. The boat is 17 feet long, 4 feet 6 inches beam and 33½ inches deep at the stern. She is well built in the usual thorough Rice manner, of the best of material, and is built to stand rough usage and give a safe boat for use in any water where a boat of this size can be used. She is driven by a 3-horsepower Rice motor, which gives a speed of 7 miles.

The other boats of the company are: A 20-foot Special Launch, with a beam of 4 feet 4 inches, cedar planked, mahogany trim, interior finish in natural wood and equipped with a 4-horsepower jump-spark, single-cylinder Rice motor, which

Rice Bros.' 20-ft. special launch, equipped with 6-h.p., single-cylinder motor

gives a speed of 8 miles an hour; a 20-foot Fast Runabout of the same dimensions but with a little more elaborate trim, and equipped with a 8-10-horsepower Rice 2-cylinder motor, giving a speed of 12 miles an hour. Then there is a 20-foot Auto Launch of practically the same dimensions though 2 inches deeper, finished throughout in mahogany, with a 2-cylinder, 8-10-horsepower Rice engine installed under a hinged hood just forward of amidships. The boat has a speed of 13 miles. The little 9-foot cedar planked, mahogany-finished yacht tender made by this company, which sells at $45, is a boon to all small boat owners.

Matthews Yacht Tenders

The Matthews Boat Company, of Port Clinton, Ohio, exhibited at the Show two very handsome yacht tenders, one being an 18-foot lap-streak power tender finished in mahogany, with a large cockpit, in which the steersman's seat is divided by a bulkhead from the rest of the cockpit, there being a small "well" aft for the crew, from which point the boat can also be steered. The other tender is a little 9-foot rowing "dink" trimmed in mahogany.

The Handsome Runabout of the Milton Boat Works

One of the most attractive boats at the Show in regards to design, workmanship, and also price, was the 22½-foot runabout made and exhibited by the Milton Boat Works, of Rye, N. Y. This boat has a beam of 5 feet 7 inches, and is equipped with a 3-cylinder, 12-horsepower Ferro engine, installed under a hinged hatch in the deck forward of amidships, which gives her a speed of 13 miles an hour. The boat is of very graceful design, with enough beam and depth to make her a *real* boat. She is planked with Southern white cedar, while deck, cockpit, coaming and transom are of selected mahogany. She has bulkhead control, the cockpit having two 'thwartship seats, which leave a large space for the use of cockpit chairs. She is painted lead color, with a light green bottom, and presents a very "classy" appearance, the boat being very well built and up to the usual high standard of this company.

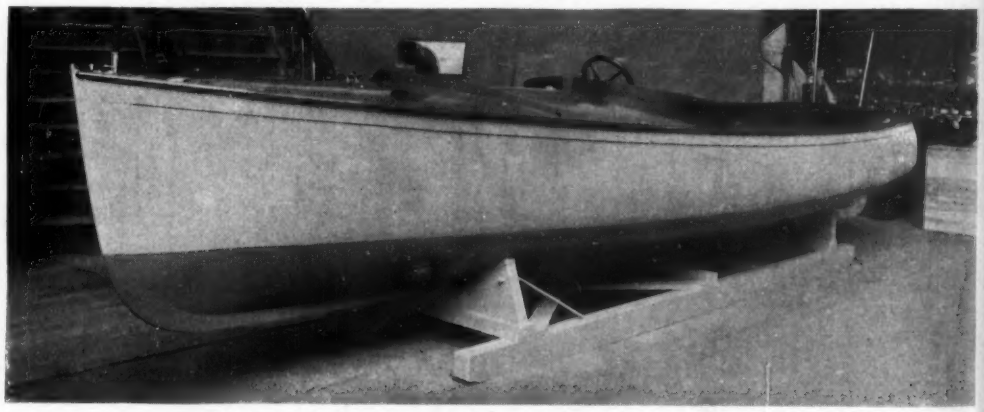
A handsome cedar planked mahogany-trimmed yacht tender was also exhibited by the Milton Boat Works. Price and full specifications of these boats may be had by writing Milton Boat Works, Rye, N. Y.

The Curtiss Flying Boat

The flying boats recently perfected by Mr. Glenn H. Curtiss, of the Curtiss Aeroplane Company, Hammondsport, N. Y., are so closely akin to racing hydroplanes, and make such an appeal to motor boat owners, that the company exhibited the latest type of Flying Motor Boat at the Garden Show, where it attracted unusual attention.

The boat, which is shown in the photograph accompanying this, bears a strong resemblance to a hydroplane, the hull of the boat being carried beneath the wings. The boat is equipped with two small wheels, such as are carried by a regular aeroplane, so that she may be launched either from the land or from the water. The engine is an 8-cylinder, 4 x 5 V-type motor, built by the Curtiss Company, of Hammondsport, which weighs only 300 pounds and develops about 86 brake-horsepower. These boats are coming into very general use among the navies of the world, and are being rapidly taken up by sportsmen as a pastime which offers all the attractions of an aeroplane without the danger.

This little boat will carry two passengers, and



22½-ft. runabout built by Milton Boat Works. Speed 13 miles

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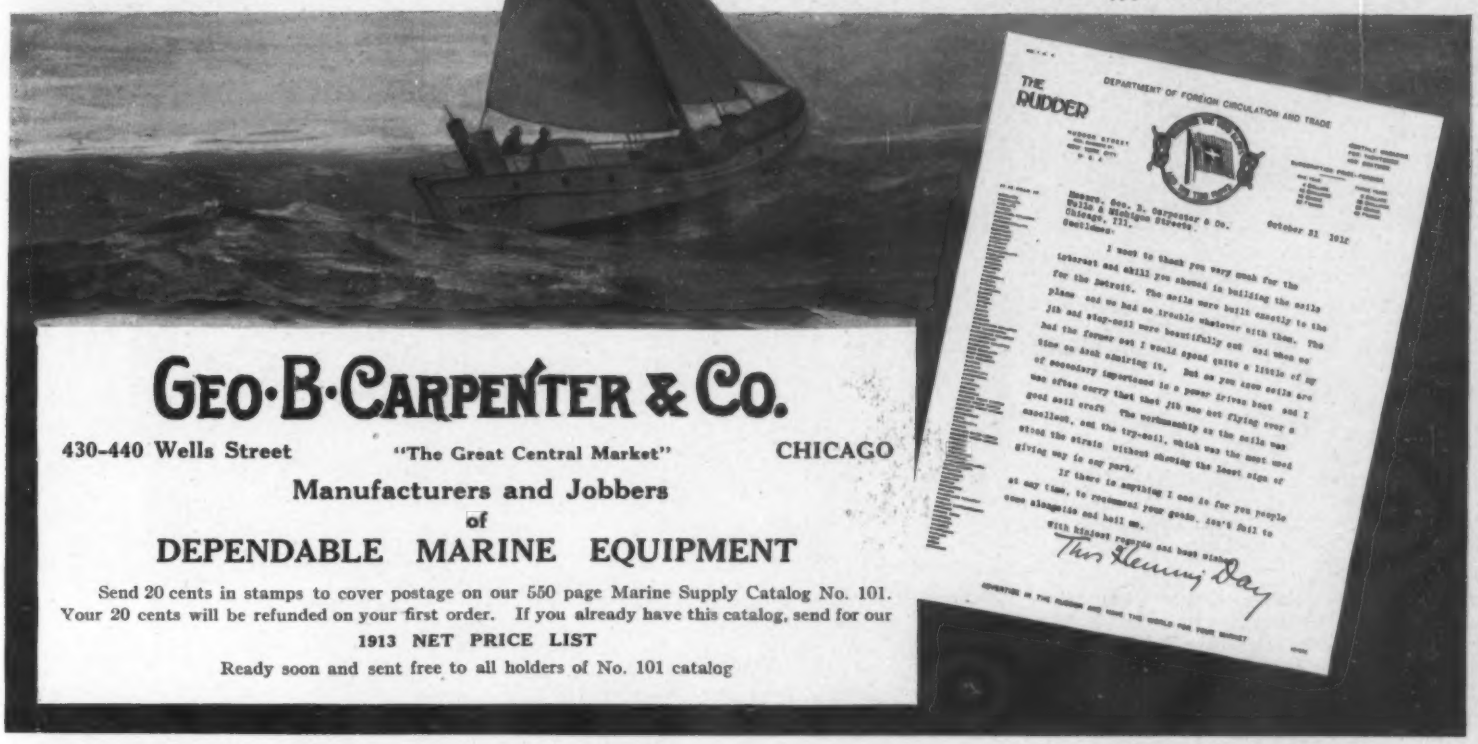
THE RUDDER
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Messrs. Geo. B. Carpenter & Co.
Wells & Michigan Streets
Chicago, Ill.
Gentlemen:
October 21 1912
I want to thank you very much for the interest and skill you showed in building the sails for the Detroit. The sails were built exactly to the plans and we had no trouble whatever with them. The jib and stay-sail were beautifully cut and when we had the former set I would spend quite a little of my time on deck admiring it. But as you know sails are of secondary importance in a power driven boat and I was often sorry that that jib was not flying over a good sail craft. The workmanship on the sails was excellent, and the try-sail, which was the most used stood the strain without showing the least sign of giving way in any part.
If there is anything I can do for you people at any time, to recommend your goods, don't fail to come alongside and hail me.
With kindest regards and best wishes
Thos Fleming Day

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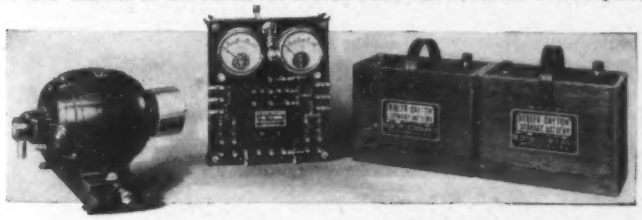
See our exhibit at the Montreal Motor Boat Show, March 29 to April 5.



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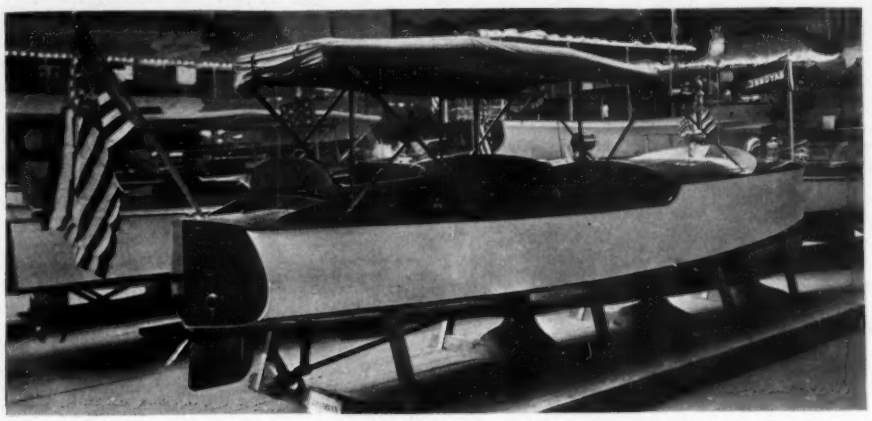
The flying motor boat exhibited by Curtiss Aeroplane Co. at the Motor-Boat Show

is said to have made, in tests by the Curtiss Company, a speed of approximately 55 miles an hour through the water and 70 miles through the air. It was in one of these little boats that Lieut. J. H. Towers recently traveled 392 miles in 6 hours 10 minutes and 38 seconds without a stop, or at the rate of more than a mile a minute.

It may be interesting to note that this flying boat of Mr. Curtiss' was awarded the Collier trophy for 1912 and 1913 for being the greatest contribution to the advance of aviation that had been developed during the preceding year.

Bayonne Launch and M. I. Doyle Company's Runabouts

Among the interesting runabouts at the Show was the new 22½-foot V-bottom boat with round bilges recently designed and built by the Bayonne Launch Company and M. I. Doyle Company, Con.



22½-ft. round bilge, V-bottom boat, built by Bayonne Launch Co. and M. I. Doyle Co.

The round bilges in this boat are a new departure in this type of craft which will be appreciated by those who know, as it has all the acknowledged advantages of the V-bottom type while it retains the appearance of a round-bottom boat above the water and prevents the tendency to leak along the bilge and chine piece, where the joint in the old type occurs.

This boat is 5½ feet wide and draws 21 inches of water. The engine is installed forward of amidships, under a slight raised deck, in which are hinged hatches, the cockpit occupying the entire after end of the boat, and being large and roomy. Washboards along the forward deck not only give further protection to the cockpit but add to the appearance of the boat. She will be equipped with a Hazard 4-cycle, 4-cylinder 25-horsepower motor, which is said to give her a speed of 19 miles an hour. It is an extremely high-class outfit.

One of the novelties at the show was the Rift-Climber, built by the Riftclimbing Boat Company, Inc., of Athens, Pa. This is a flat-bottom boat for use in very shoal water, the propeller working in a tunnel stern so that, by reason of the vacuum created in this tunnel, the wheel will work in 12 inches of solid water while the boat floats in 5 inches.

THE ENGINES AT THE NEW YORK SHOW

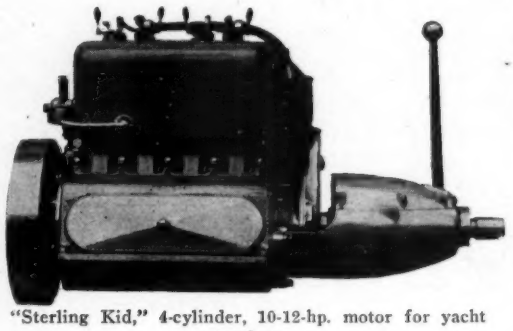
The New "Sterling Kid"

The exhibit of the Sterling Engine Company at the New York Show was not confined to their space alone, but their engines were seen in a number of boats at the Show, among them being the Queen Reliance and the Baby Reliance II, or duplicates of her.

A full line of Sterling engines comprised the exhibit of the Sterling Engine Company, and included their heavy-duty, medium-duty and high-speed racing engines. A little power plant that attracted unusual attention was the new "Sterling Kid," an engine designed especially for high-grade yacht tenders and small boats. It is a 4-cylinder, 4-cycle motor, the cylinders being cast *enbloc*, of 2¾ bore by 4½ stroke, and it will develop 10-horsepower at 1,000 revolutions per minute and 12-horsepower at 1,200 revolutions per minute. The whole outfit weighs only 215 pounds, the crank case being of manganese bronze, polished, while the cylinders are painted in a blue-gray enamel. It is a very "classy" little engine, just the one that yacht owners have been wanting for use in yacht tenders.

Another interesting engine at the Sterling exhibit was 6-cylinder, 45-75-horsepower medium-duty and speed engine, laid bare for the close inspection of the public. This is a 5½ by 6-inch motor of the same type that powered the Dixie Junior hydroplanes, and motor boat enthusiasts were given an unusual opportunity to examine the inside working parts of a highly successful 4-cycle engine and of discussing the merits of its design with practical engineers.

The new catalogue of the Sterling Engine Company is now ready, and is an extremely handsome and interesting piece of work. It describes in detail every motor of the Sterling Company, from the 2-cylinder heavy-duty to the big 8-cylinder, 150-horsepower racing motor, while it is illustrated with photographs of many boats equipped



"Sterling Kid," 4-cylinder, 10-12-hp. motor for yacht tenders

with Sterling engines. It may be had by writing the Sterling Engine Company, 1258 Niagara Street, Buffalo, N. Y.

Wolverine Motors

Those who are interested in a heavy-duty engine were much taken with the effective, business-like look of the Wolverine engines exhibited at the Show. These engines gave a sense of power and reliability that was at once apparent.

The full line of Wolverine 4-cycle, heavy-duty engines consists of the following: 5-horsepower, single-cylinder; 12-horsepower, 2-cylinder; and the following powers in 3-cylinder models: 18, 27, 36, 50, 65, 75 and 100. A feature peculiar to the Wolverine is the large bore and stroke, which accounts for the slogan adopted by the company, "The motor with the bore and stroke." This is a point to which the discriminating buyer gives much consideration.

These engines have been developed along lines which tend to keep them in the front rank when it comes to economy in operation. The question of fuel is an important one at present on account of the soaring prices of oils, and Wolverine engines use successfully kerosene, distillates, and many of the so-called "fuel oils" known in different parts of the world by such names as Solar Oil, Blue Oil, Green Oil, Texas Oil, Coal Oil, Foltzer Oil, Kudrum Oil, Masut Oil, Astatka, Petrolite, Water Lily Brand, Victoria and Oriental.

In the larger sizes, Wolverine engines are being operated successfully on gas generated from suction producers using anthracite coal, charcoal and coke. This fuel has been tested out in these engines under actual working conditions, and has proved to be very successful, both as to flexibility of the engines and economy in cost of fuel, both in the United States and abroad.

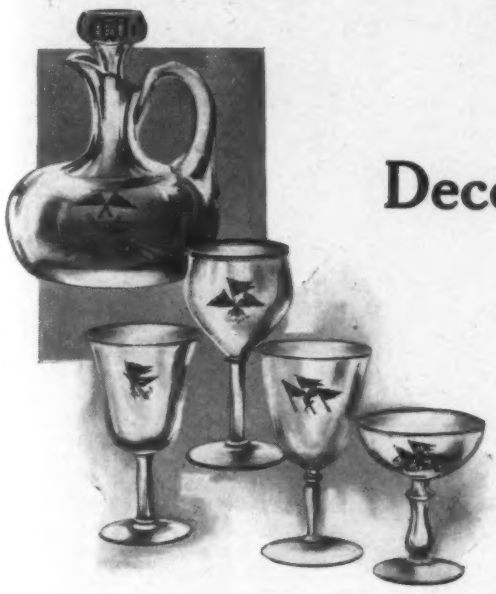
Catalogue and prices may be had by writing the Wolverine Motor Works, Bridgeport, Conn.

Standard Engines

The Standard Motor Construction Company, of Jersey City, exhibited as usual at the New York Motor Boat Show the following engines:

Horsepower	No. of Cylinders	Bore and Stroke Inches
10- 12	2	5 x 6½
20- 24	4	5 x 6½
32- 37	4	6 x 8
50- 54	6	6 x 8
125-150	6	8½ x 11
25 auto-marine	4	4 x 5½
4½-kw. auxiliary	2	4½ x 5½

Among the refinements and developments embodied in the 1913 model may be mentioned the construction of the in-take pipe, which permits the running of the engine at a lower rotative speed than heretofore. This has been found especially desirable in fishing boats where the engine is run for hours at a time throttled as low as possible.



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To yacht owners contemplating the purchase of such equipment we will gladly submit a specimen plate or goblet decorated with any design, together with estimate, *free of charge and without entailing any obligation to buy.* Write for illustrated booklet.

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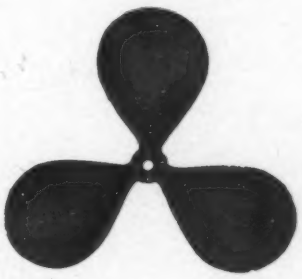

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We are the Largest Marine Paint Manufacturers in the World

WOOLSEY'S COPPER BEST PAINT

FOR WOODEN BOATS' BOTTOMS IN FRESH OR SALT WATER

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Guaranteed

Will stand for one year if properly applied, and keep the bottom clear from marine growths, as Grass, Moss, Barnacles, Etc., and prevent boring by the destructive teredo worm.

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MAKE THE SMOOTHEST SAILING BOTTOM

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Guaranteed to stand under the most trying circumstances, as on yachts, boats and vessels of any kind for either inside or outside work, also front doors, store fronts, wagons, etc.

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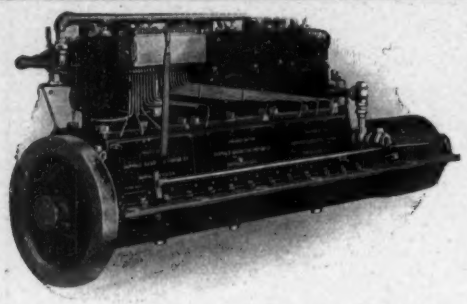


The 6-cylinder, 45-hp., heavy-duty Buffalo engine

Buffalo Engines for 1913

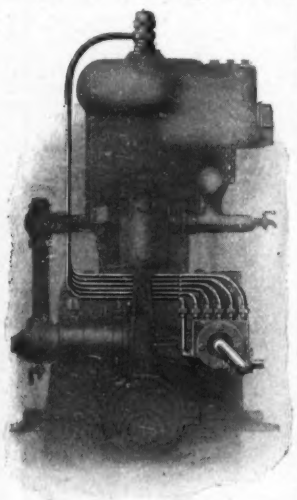
One of the engines at the New York Show which attracted the most attention, not only on account of its size but also on account of its business-like appearance and the number of novel features it embodied, was the 125-150-horsepower, 10-inch by 12-inch Buffalo heavy-duty motor. This engine was designed for extremely heavy work; will operate on either kerosene or gasolene, and has many interesting features. This type is also made in a 4-cylinder size, the same bore and stroke, giving 85-100 horsepower.

As economy demanded that engines for this kind of service be operated on something less expensive than gasolene, the Buffalo Motor Company set themselves to devising some method of feeding their engines kerosene on an economical scale. The kerosene vaporizer has been changed to be better fitted to supplying oil to these large engines, and the vaporizers on this large, heavy-duty motor called forth much favorable comment.

This engine, as well as a number of the other models gotten up by this company for use on work boats and cruising boats, is fitted with an air-starting device which has been producing very satisfactory results.

This air starter was designed by W. E. Blair, vice-president and superintendent of the company. It is so constructed that it forms a part of the rear cam-shaft bearing, and it is very simple and accessible. The valve is of the floating disc type, which, when the air is applied, seats itself automatically and instantly reseats itself when the air is turned off. Therefore there is no friction or wear whatever when the engine is in action. The device is operated by a tongue and groove method, which makes it impossible for it to get out of time. The rotating disc valve has an elongated slot, which covers and uncovers the port holes in the distributor body, admitting the air to the tubes which connect with air check valves. These checks are provided with a spring of sufficient tension to resist the suction stroke of the piston. Being timed with a sparking device, it admits pure air alternately to each cylinder until the explosion. (See cut.)

One of these big 150-horsepower engines has recently been installed in a ferry-boat for use between Savannah, Ga., and Port Royal, S. C., where a long daily run is required of it.



Buffalo air starter attached to Buffalo motor

The other models and sizes of marine engines of the Buffalo Gasolene Motor Company are: A 10-12, 13-15, 20-24, 26-30, 40-45 and 60-70-horsepower heavy-duty; a 3-4, 5-6, 8-9, 10-12, 16-18, 65 and 100-horsepower regular type; and in the auto-marine line for high-speed work a 25-30 and 40-50-horsepower.

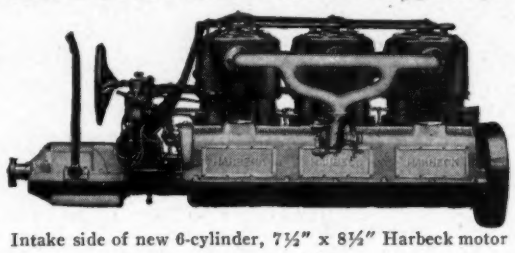
The 1913 catalogue of the Buffalo Gasolene Motor Company is ready for distribution, and fully describes in a concise and comprehensive way the Buffalo engine. It is beautifully illustrated with cuts and "ghost" half-tones of the Buffalo engine, and of many interesting boats that carry Buffalo motors. It may be had by writing to the company at 1271-1283 Niagara Street, Buffalo, N. Y.

Refined Harbeck Motors

The Harbeck Motor, a new engine of unusual refinement that has just entered the marine field, is a medium-weight, four-cycle engine, designed for medium and heavy-duty service. There are two models, one of six cylinders and one of four, both having 7½-inch bore and 8½-inch stroke. Horsepowers ranging from 40 to 150 are available, depending upon the service for which the engines are required, the varying capacity being governed by factors of rotation, speed, etc. The engines are designed for a multiplicity of uses, including high-powered, part-open boats, cruisers, yachts, commercial and work boats, fishing craft and ferries.

Firm in the belief that deadweight of metal is not necessary for strength, the designers have made the engine as light as rigidity and durability would permit, with the idea of enabling the purchaser to put the extra displacement into stout hull construction.

They have produced, among other things, an engine of symmetrical and well-balanced design, having a distribution of material such as to give proper strength and rigidity at the point of greatest strain and to eliminate the surplus use of metal at points where strains are not localized, hence a motor which is said to be lighter per



Intake side of new 6-cylinder, 7½" x 8½" Harbeck motor

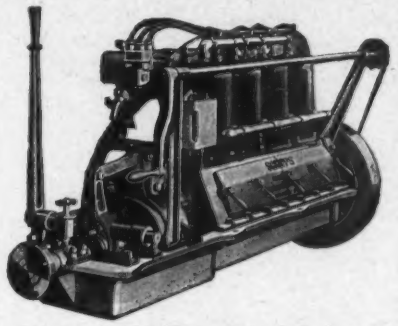
horsepower than any competing engine capable of delivering its full torque for an equally sustained period; an engine that is clean in appearance and free from external pipes, rods and accessory connections—all of the latter, magneto, pumps, starting devices, controls, etc., placed in a compact, accessible group; an engine which runs clean, free from spurting oil, and yet having all the accessibility of an open-base motor; an engine in which every bearing may be separately adjusted or replaced without tearing down the engine or removing it from the boat; an engine having a system of carburetion and manifolding which permits of the greatest flexibility in operation, and one with the reciprocating parts balanced to a nicety, and wherein the relation of all moving parts has been adjusted to give the smoothest operation.

The 6-cylinder engine has a piston displacement of 2,250 cubic inches and a wide range, the engine developing 65 horsepower at 300 revolutions per minute, and 140 horsepower at 650 revolutions per minute, while the 4-cylinder engine has a displacement of 1,500 cubic inches, and develops 43 horsepower at 300 revolutions per minute and 90 horsepower at 650 revolutions per minute. They are made in both aluminum and semi-steel base as ordered.

The Harbeck Motor Company, of 2032 Dominick Street, Chicago, will furnish full details and prices upon application.

A New Scripps Midget for Small Boats

To anticipate a growing demand for a miniature high-grade 4-cycle motor, such as would be desirable for use in tenders and other small boats, the Scripps Motor Company, of 657 Lincoln Avenue, Detroit, Mich., have added to their 1913 line a 4-cylinder, 4-cycle, 7-horsepower complete power plant, known as the "Scripps Midget."



Four-cylinder, Model H, semi-speed Scripps motor, with rear starter

It weighs, complete, 200 pounds; its cylinders are 2¾-inch bore by 3½-inch stroke, cast in pairs, with enclosed valves. The crank-case is made of aluminum, and the crankshaft is of vanadium steel, running in removable bronze, babbitt-lined bearings. All moving parts, except the fly-wheel, are completely enclosed in oil-tight compartments, and the entire mechanism is beautifully finished and the exterior brilliantly polished.

No pains nor expense have been spared to make this the best miniature power plant ever built.

Its regular equipment includes Bosch magneto dual ignition system, enclosed reverse gear, shaft, flexible coupling, wheel and air self-starter.

So simple and reliable is this power plant that it requires little attention, and due to the fact that it is equipped with an air self-starter, and is absolutely oil-tight, it can be handled with ease and comfort.

Scripps motors are made in extreme heavy-duty, semi-speed and medium-duty types in eleven sizes. The heavy-duty sizes are 7½ inches bore by 9 inches stroke, in 2, 4 and 6 cylinders, with a range of from 24 to 96 horsepower, at 350 to 450 revolutions per minute. The semi-speed and medium-duty types come in from 1 to 6 cylinders, in 4½ inches by 5 inches, and 5½ inches by 6 inches bore and stroke, in from 6 to 72 horsepower.

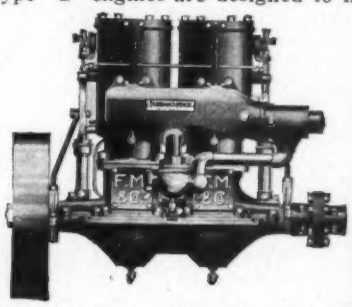
The model "L," 2-cylinder, 12 to 18 horsepower, is the exact duplicate of the motor with which the Detroit was equipped in her trans-Atlantic passage.

Fairbanks-Morse Engine Exhibit

Fairbanks-Morse marine engines again came in for appreciative attention of motor boat bugs at the New York Motor Boat Show. This firm has a highly developed line of engines, comprised of three different types, ranging from 3½ to 24 horsepower, all of which were shown. Fairbanks-Morse & Co. have given their attention to the development of engines giving the maximum of power and reliability without sacrifice of fuel economy.

For small boats the Fairbanks-Morse type "E" engine is especially adapted. This is built in 3½-horsepower single-cylinder and 7-horsepower two-cylinder. These engines have 3¾-inch bore and stroke. They are a lightweight, high-speed engine, simple to operate, very generously rated.

The type "G" engines are designed to meet the



Fairbanks-Morse Heavy-Duty, Type "K," 15-hp., 2-cylinder engine

Yacht Sails and Canvas Work Of All Description

Schooner Yacht "Westward."

The famous schooner yacht WESTWARD had a full suit of CURTIN'S SAILS on her trip of 12 days and 17 hours across the Atlantic, made in December. Here is what her Captain writes us:

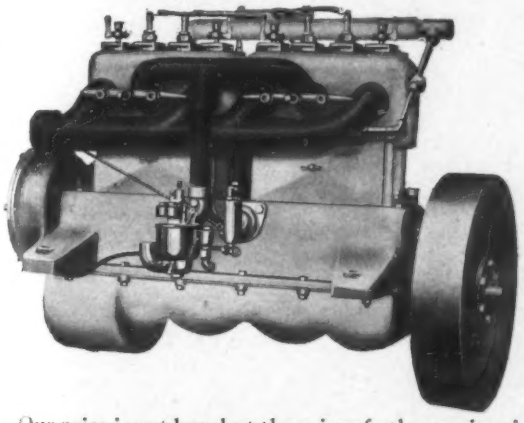
John Curtin, Inc., Sailmakers, 4 South Street, New York City.
Dear Sirs:—Had a very pleasant voyage over; 12 days, 17 hours to the Lizard which is one of the best trips ever made across the ocean for a small boat. The sails were fine. Wishing you a happy New Year.
Yours, Coalfleet.

JOHN CURTIN, Inc.
4 South St., New York City

America's Standard — 12 H.P. — MARINE ENGINE

$150 ·KERMATH· **$150**

Four-Cycle, Four-Cylinder, 3½ in. bore, 4 in. stroke
Speed 600 to 1,000 r. p. m.

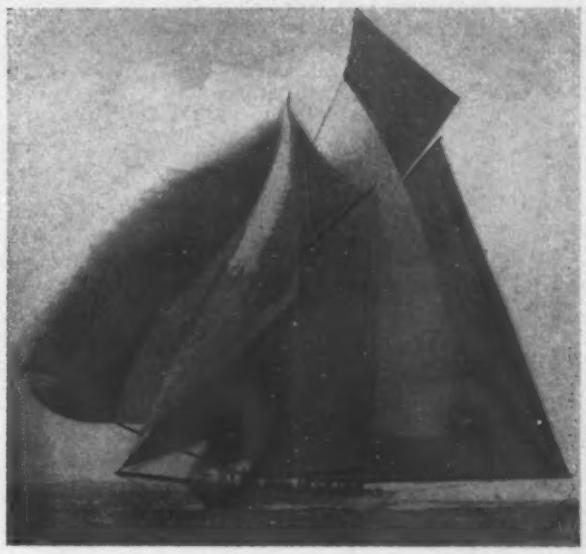


Our mechanics, working on constant reproduction of the same parts, reach a high state of efficiency, which is one of the greatest cost savers in a modern factory. This is the reason why we build such a high grade engine with the best equipment at a moderate price.

Our price is not low, but the price of other engines is too high by comparison. Other manufacturers' prices are based on cost of production, the same as ours, but there is not a concern in the country today that can compete with us in quality and price until they manufacture one size and one type only and do it in large quantities, devoting their entire efforts in every department on one article.

Kermath Marine Motors are designed by James Kermath, and manufactured and sold *exclusively* by

Kermath Mfg. Co., 47 E. Fort St., Detroit, Michigan



Lowell Duck Wins

Although this notable success in sail-cloth manufacture was achieved only a year ago, the superiority of Lowell *EGYPTIAN* Duck for racing was instantly recognized.

This duck was straightway adopted by the leading sailmakers. The 1913 racers will carry it, and many of the older craft are being refitted with it.

Although finer and closer-woven, it is soft, pliable and very easy to handle. It is smooth, strong and trustworthy. It outwears any other duck, by years, and keeps its set and shape as no other can. Made from selected long staple brown Egyptian Cotton in one quality only—No. 9 to No. 000—4 oz. to 12 oz.

Lowell Egyptian Duck

The new racing sail-cloth that winners depend on.

TRADE MARK
LOWELL DUCK
REG. U.S. PAT. OFF

Boston Yarn Co., Selling Agents, Boston

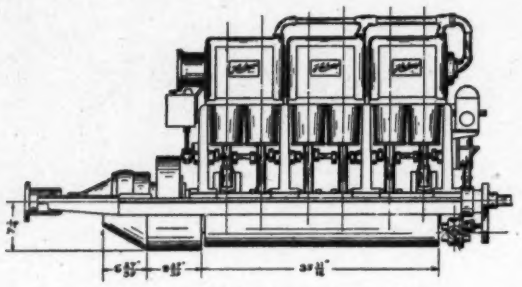
Consult YACHTING'S Information Department on any of your problems. Its service is absolutely free.

demand for a high and medium speed, reliable and efficient engine, and are made in 1, 2, 3 and 4 cylinders, developing 6, 12, 18 and 24 horsepower at 800 revolutions per minute. This type is adapted for speed, pleasure and work boat requirements.

Type "K" engine, the latest design of this firm, is built in one and two cylinders, rated at 7½ and 15 horsepower, at 500 revolutions per minute, and proportional power at lower speeds. Being of rigid construction with exceptionally large bearing surfaces, this type is especially suited for fishing boats, work boats and cruisers. The improved igniter that is being used this season adds much to the simplicity.

These engines can be furnished to use either gasolene, kerosene or distillate, and are surprisingly efficient on any of these fuels. The great economy of this type has led to its being used to a large extent by the coast fishermen.

The Fairbanks-Morse exhibit was exceptionally interesting, as a sectionalized engine of each type was shown in operation, and these with the unassembled working parts on display gave the public a very good idea as to the workmanship and material. An interesting booklet showing size and design of boats in which these engines are being used will be mailed upon application. Complete catalogue of marine engines may be had by addressing Fairbanks, Morse & Co., Chicago, Ill.



Holmes 6-cylinder open-base motor

Holmes Motors at the Show

As examples of the full line of 1913 motors of the Holmes Motor Company, of West Mystic, Conn., there were seen at the New York Show three models, as follows: Model G, 40-45 horsepower, four-cylinder motor, especially designed for moderate-sized cruisers and pleasure boats; Model H, 60-70 horsepower, six-cylinder, and Model K, 35-40 horsepower, six-cylinder.

The Holmes line of engines are of the open-base type, the base, however, being covered by a removable splash board on either side for the sake of appearance and cleanliness.

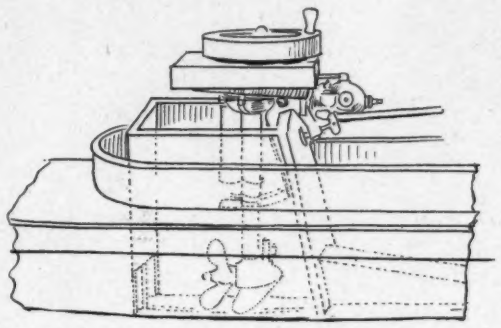
The Holmes motor was designed with the main idea of producing an accessible engine—one in which every part could be reached and taken out practically without disturbing any other part. In any engine, especially in engines used for commercial purposes, the value of this feature is easily seen. In the new models even the crankshaft can be taken out through the side of the base, as the standards are divided, and the pistons can be easily removed through the bottom of the cylinders. The company claim that it only requires 12 minutes to strip their engine so that crankshaft may be taken out, and only 5 minutes to take out a piston.

The Holmes is a long-stroke, open-base, four-cycle motor, the company believing in the long-stroke feature by reason of its flexibility and economy of fuel consumption. Another feature to which the Holmes Company calls attention in their engine is the reserve power at extremely low speeds.

The lubrication in all these engines is force feed automatic to all main bearings, pistons, crankboxes and thrust bearings.

The reliability of the Holmes motor is shown from the fact that the Government has adopted them for power lifeboats in the Life Saving Service, one of the requirements being that the engine must be started again and ready to run in 30 seconds after the lifeboat has been capsized and righted. The engines have given unfailing satisfaction in this service.

The Holmes Motor Company are also building a 40-foot, stock, semi-speed launch at their West Mystic plant. This is a high-grade boat finished in the best possible manner.



Evinride detachable motor working in well of hunting skiff

Evinrude Detachable Motors for Rowboats and Dinghies

As a demonstration of the usefulness of their 2-horsepower detachable rowboat motor, the Evinrude Motor Company, of 434 Walker Street, Milwaukee, Wis., had a distinctly novel exhibit at the New York Show. This consisted of the miniature sterns of four types of boats with an Evinrude motor clamped on each in the exact working position. The four types shown were an ordinary rowboat, a canoe, a flat-bottomed dinghy and a hunting skiff, the latter with the engine working through a well very ingeniously built in the stern of the boat, just forward of the stern transom.

In addition to these a sectional cut of an engine was shown, with the engine running under electric power, giving an idea of the mechanism both inside the cylinder and in the transmission gear.

The Evinrude motor is rated at 2 horsepower, and makes an ideal power plant for any type of small boat where it is not desired to install an engine in the boat. It is exceptionally good for use in power tenders, fishing skiffs, hunting boats, etc. One of the improvements of the year is an under-water exhaust which can be attached to any of the motors, absolutely deadening all noise of the exhaust gases.

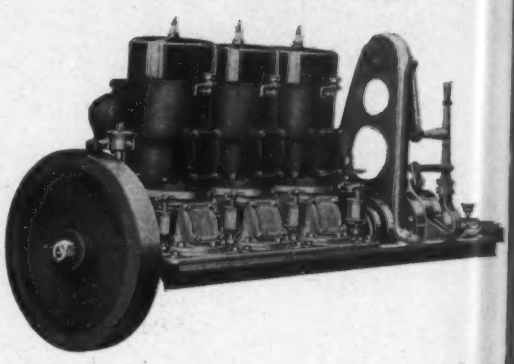
The Evinrude motors are being shipped all over the world. The company say that they sold over 2,000 last year in Scandinavia alone, mainly for the fishing industry. They are not a toy, but a good, reliable motor guaranteed to deliver the power.

A Full Line of 1913 Gray Motors

A full line of Gray two-cycle motors was exhibited by Mr. W. C. Disbrow, Jr., the New York representative of the Gray Motor Company, of Detroit, Mich. Every size and make of Gray engine was exhibited, the line consisting of models U, R and T, made in from 1 to 3 cylinders. The 6-horsepower model U is a 2-cylinder engine, cylinders being cast *enbloc*. Model R comes in 4½-horsepower and 6-horsepower single-cylinder and 9 and 12 double-cylinder, while the model T is offered in 7, 8 and 12-horsepower single-cylinder, 12, 16 and 24-horsepower double cylinder and 21 and 36-horsepower three-cylinder. This model T is designed to operate either on kerosene or gasolene, and will be equipped with a Gray kerosene injector system when desired.

One of the interesting motors at the exhibit was a 36-horsepower model T, finished in white enamel, with a complete equipment, including magneto and air starter, with a compression tank for storage of the air.

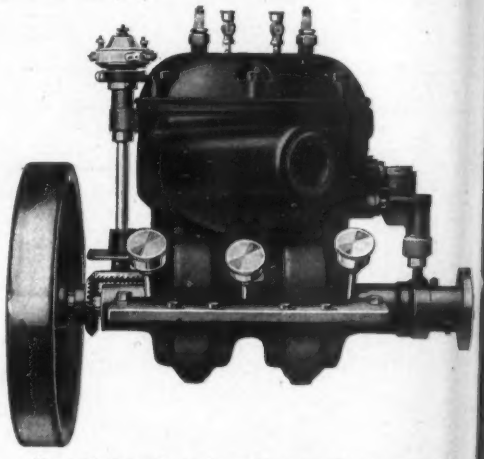
In order to be better equipped to take care of the rapidly-increasing marine engine business in New York and adjacent territory, Mr. W. C. Disbrow, Jr., formerly located at 30 Church street, New York City, found it necessary to seek larger and better quarters, and about the first of February moved into his new location at 71 Cortlandt Street.



New 36-hp. Model T Gray motor, equipped with elevated rear starter and reverse gear

By making this move Mr. Disbrow has an excellent location, with plenty of floor space for displaying a complete line of Gray motors, a splendid office and show room in front, with extra large storage space and machine shop in the rear. The machine shop will be equipped for taking immediate care of any necessary repairs, etc., and will be in charge of experienced, careful and thorough workmen.

A line of necessary repair parts will also be carried, so that Mr. Disbrow can render practically complete factory service in every particular—a mighty important point to all Eastern customers, because it enables them to get what they want quickly, and in many cases will avoid the annoying delay of correspondence in regard to the matter of repair parts, etc.



New Model 2K, high-speed, 7-hp. Eagle engine

New Models in Eagle Engines

The Standard Company, of Torrington, Conn., exhibited at the Show a number of entirely new engines for 1913 that made a distinct appeal to motor boat owners by reason of the neatness of design, quality, simplicity and general up-to-date appearance.

The new models have a number of improvements over the models of former years, the high-speed model having a new type of round head. The cylinders of the 2-cylinder, 7-horsepower model 2K are cast *enbloc*, with both heads cast in one piece. This is a jump-spark engine, with a bore 3⅝ inches and stroke of 3¼ inches, with ports designed for high-speed work. This is an engine of extreme simplicity, there being only three main castings—the cylinders and upper base, the removable head and the lower base. The fly wheels are corrugated on the inside of the rim for ease in starting, thus doing away with the old fashioned handle. The model R, medium-speed heavy-duty type also attracted attention by reason of its simplicity, neatness of design and general appearance of strength and power.

These engines are fitted with Excelsior flex

WILSON & SILSBY

Rowe's Wharf *Sailmakers* Boston, Mass.

For three generations the name of "WILSON" has been identified with sails on the FASTEST YACHTS IN THE WORLD—from the Championship Winners of all Classes to America's Cup Defenders. No better results can be obtained than from the use of our sails. Among the championship winners of 1912 using Wilson & Silsby sails may be mentioned the following:

ELLEN, Y. R. A. of Mass.
WA WA, " "
MOSLEM II, " "
QUAKERESS, Inter-Club Y.R.A.
CHEVY CHASE, " "
CURLEW II, Great South Bay, L.I.
SALAMANDER, Inland Lakes Y.R.A.
CUBANOLA, " "
KATHRYN II, " "
CHALLENGER, San Francisco
LUCIE, Gottenburg, Sweden
JOLANDA, Abo, Finland

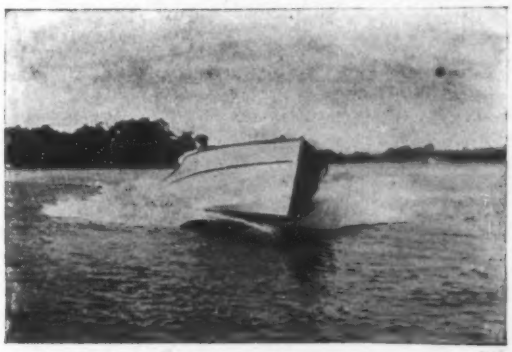
Wa Wa, winner championship Mass. Y.R.A., Boston Y.C. and Hull one-design class.

Moslem II, champion 18-ft. class, Y.R.A. of Mass.

We take pleasure in calling attention to the fact that we are having made for us at the present time a full new line of specially constructed yacht duck of the finest combed Egyptian cotton. This duck is made on the very latest machinery and by the best weavers in the United States. We can guarantee to give our customers something in canvas that is absolutely perfect and of the same first-class workmanship that has always characterized our sails.

"Hand-V-Bottom" Motor Boats

Combine seaworthiness, ability and speed



Voodoo, a 24-ft. Lawley-built "HAND-V-Bottom" runabout with a guaranteed speed of 24 miles. A *real* boat.

A duplicate of this boat ran from New York to Digby, Nova Scotia, and return last summer—2,000 miles on the open sea.

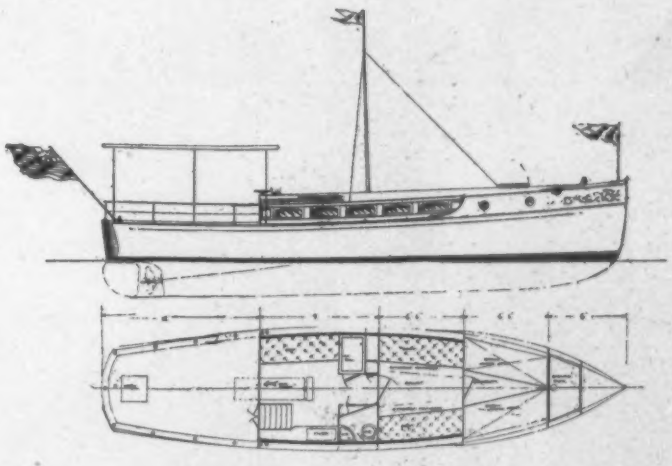
"HAND-V-Bottom" boats are easily constructed, are the best sea boats ever designed, are faster and easier to drive than the round-bottom type and have the maximum of room and comfort.

I can supply the completed boat as above or you can build from my designs.

Easily constructed—no steam bending.

WILLIAM H. HAND, JR.

First National Bank Building NEW BEDFORD, MASS.



WE BUILD Yachts complete and there is no divided responsibility. Our 20th Century Motor, which we build in our own shop, is considered one of the leading engines. We are in position to build you a complete yacht, furnished and equipped, at prices that cannot be equaled when construction and finish are taken into consideration. Let US figure on your new yacht.

N. Y. Yacht Launch and Engine Co.
Morris Heights New York

feed marine carburetors, with the option of Schebler carburetors. The high-speed models come in the following sizes: 3½ and 6-horsepower, single-cylinder, and 7-horsepower double cylinder. The medium speed types come in 1½ and 3½-horsepower, single-cylinder; 7 and 12-horsepower, double-cylinder; 11 and 18-horsepower, 3-cylinder, and 15 and 25-horsepower, 4-cylinder; while the heavy-duty models are 2½, 5½ and 7-horsepower, single-cylinder, and 12 and 15-horsepower, 2-cylinder. In addition there is a combination heavy-duty and medium-speed 4-6-horsepower motor.

Catalogues describing these may be had from the Standard Company, Torrington, Conn., or from their New York agent, Bruns, Kimball & Co., Inc., 132 Liberty Street, New York City.

A New Model of the Famous Porto Motor

The Waterman Marine Motor Company, of Detroit, Mich., show this year a new model of their popular portable motor, known as Model C14. While this compact little engine has always been noted as the lightest for its power, improvements this year add to its efficiency and convenience.

The Waterman Porto develops two full horsepower, and weighs only 27½ pounds per horsepower—a total of 55 pounds. In less than five minutes it can be taken off or attached to any small boat.

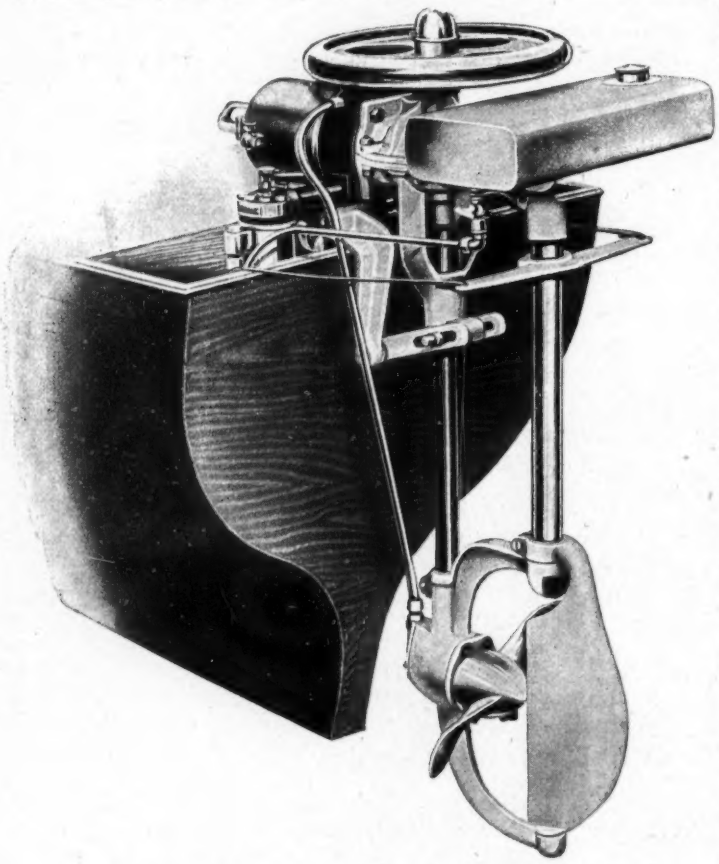
The new model has the cylinder fitted with copper jacket, as on the well-known Waterman models K1, K2 and K4. These jackets are fitted by a process original with the Waterman Company.

Perhaps the most important improvement is the arrangement of a small thrust bearing inside of the crank case where it is completely submerged in oil—a very necessary provision for salt water use. This thrust bearing takes the entire weight of the fly-wheel, crankshaft, driving shaft, shaft coupling and driving gear off the main bearing; therefore no strain is put on the main bearing except the driving impulse of the motor.

A new gear pump has been included with the Porto outfit, built into the forward end of the under-water gear case. This is lighter and more efficient than the plunger pump formerly used, and offers no resistance to the water.

A greatly improved clamp design is another important feature. The clamps on the new model Porto are pivoted on the cylinder flange, which is the center of gravity, and the lower end is adjustably connected to the tubing below the crank case, so that all the driving thrust is removed from the crank case, making in effect a truss construction. The spark plug is out of the way and amply protected by an aluminum case.

A full description of this and the other Waterman marine motors may be had in the Waterman catalogue by addressing the company at 1541 Fort Street, W., Detroit, Mich.



Details of the new Model C14 Waterman Porto outboard motor

Frisbie Motors for 1913

At Madison Square Garden a number of Frisbie motors were exhibited by the Frisbie Motor Company of Coll Street, Middletown, Conn., as indicative of their line of 4-cycle motors designed for semi-heavy duty, medium-duty and high-speed work. These motors are one of the foremost examples of valve-in-the-head type, valves being located over the piston, where maximum power and economy result.

In designing these engines the company has adhered to the unit system, the cylinders being of three different sizes. Multiple-cylinder engines are made up of an aggregation of these units. This gives a much desired interchangeability of parts.

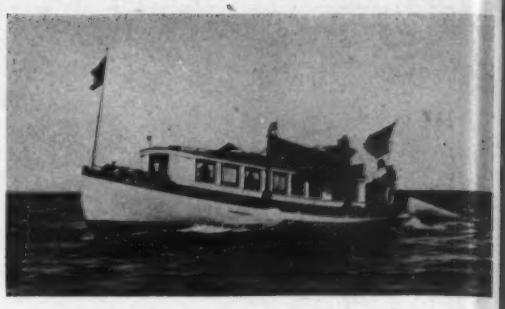
The motors come in the following sizes: 3-5 and 4-7-horsepower, single-cylinder; 6-10 and 10-14-horsepower, two cylinders; 12-16, 16-25 and 30-40-horsepower, four cylinders; 35-40-horsepower and 50-75-horsepower, six cylinders. The weight ranges between 260 pounds in the smaller size to 1,400 pounds for large size.

The Frisbie catalogue, containing complete description of these engines and their parts may be had for the asking.

Other Engine Exhibits

Among the other interesting exhibits were those of the S. M. Jones Company, of Toledo, Ohio, with a line of Ralaco heavy-duty, 4-cycle motors, in from 8-10 to 75-80 horsepower; the Roberts Motor Company, Sandusky, Ohio, with a diversified line of motors from 3 to 125 horsepower, including the Standard, Aerolite and Featherweight models; the Raymond Engineering Company, of Boston, Mass., with an exceptional line of 2-cycle engines, in from 10 to 80 horsepower, in 1, 2, 3 and 4 cylinders, and a 6-cylinder, V-type motor for high-speed work; a line of the well-known 4-cycle Twentieth Century motors manufactured by the New York Yacht, Launch & Engine Company, of Morris Heights, N. Y.; the well-known Craig heavy-duty motor, made by James Craig, of Jersey City, N. J.; Fay & Bowen Company, with a line of Fay & Bowen engines and open launches; Meitz & Weiss, who showed three heavy-duty kerosene-burning motors; the Fulton Engine Company, of Erie, Pa.; the Lamb Boat & Engine Company, of Clinton, Ia., and the Anderson Engine Company, of Chicago, Ill.

Palmer Brothers, of Cos Cob, had a fine lot of two-cycle engines in many sizes that was one of the largest exhibits at the Show.



Bobolink, a 36-foot Delaware River launch which makes 11 miles per hour with a 22-hp. Remington oil engine

Remington Kerosene Engines

The Remington marine kerosene oil engines, which are making a special appeal just now to all classes of boat owners on account of the economy they offer in fuel consumption, are vertical, two-cycle oil engines, which operate by the injection of the oil directly into air combustion chamber after the piston, on its up stroke, has compressed the air in the cylinder to a high pressure and temperature. This pressure and temperature is sufficient to gasify the oil which is atomized into it, and combustion takes place, due to contact of the gas with the ignition pin. The ignition is automatic, no electricity being used. There is no carburetor, oil being driven into the head by the fuel pump. The speed is controlled by a centrifugal governor located in the fly-wheel, which gives a longer or shorter stroke to the fuel pumps.

These engines are built to operate on kerosene and fuel oil, the larger sizes having the Clark-Commercial type of combustion chamber, in which petroleum fuel oil, gas oil and heavy oils can be used. The fuel consumption shown on a recent test of Mexican gas oil was 0.85 pint per brake-horsepower per hour at full load, 1 pint at half load, and 1¼ pints at one-quarter load. A 35-horsepower Remington oil engine consumes about 35 gallons of kerosene every ten hours, costing, at 9 cents per gallon, $3.15. If low-grade oil is available at 5 cents per gallon, the cost in ten hours is only $1.75. The Remington Oil Engine Company, of 120 Broad Street, New York City, will be glad to send their catalogue Y upon request.

A Fine Line of Engines by the Gasolene Engine Equipment Company

Among the new engines which the Gasolene Equipment Company, of 133 Liberty street, New York City, will handle during 1913 will be the Standard engine manufactured by the Standard Motor Company, of Jersey City, N. J., and the Stanley. A line of both of these engines will be carried at the New York office of the Gasolene Engine Equipment Company. This company are also the agents for the Ferro, Van Blerck and Ideal motors and for the Columbian Propeller Company.

They exhibited at the New York Show a line of their engines, and in addition had the Peter Pan V, the little racer which made such a name for herself last year. The exhibit was in charge of Mr. Wilbur H. Young and C. von Culin.

Kermath 4-Cycle Motors

One of the interesting engine exhibits at the Garden was that of the Kermath Manufacturing Company, of Detroit, Mich. The company showed a sectional model of their 4-cycle, 4-cylinder Kermath engine, the cylinders being cut away so as to show the actual working cycle, and the moving parts being incased in glass, so that every part of the operation could be seen. The Kermath motor is made in only one size—4-cylinder, 12-horsepower—the speed range being from 500 to 1,000 revolutions per minute. The engine weighs only 330 pounds, and while built to general principles of automobile construction it is designed primarily for marine purposes. It has very long

DEVOE
HOLLAND YACHT ENAMEL

In this Enamel we offer you the whitest, most durable, easiest working, highest gloss Enamel made for Topsides and Deck Houses and all exposed parts of your boat.

DEVOE
HEAT-RESISTING ENAMEL

Gives a high gloss finish on gas engines, motors and all metal surfaces where resistance to heat is required. Made in seven colors. Send for color card.

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Send for our free book "How to Paint a Boat." *Founded 1754*

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The Reliable Wins

A Sure Extinguisher for Gasoline Carbide, Electric and other fires.

Simple to work.

Acts like a wonder.

Don't take chances. It may save your boat and life.

At a test given at Brooklyn Navy Yard, the *Reliable Fire Extinguisher* gave the best results, and the first order has been delivered for use on U. S. Navy Tenders.

$6.00 IN BRASS

C. D. DURKEE & CO., 2 & 3 South St., N. Y.

We want you to try

Kyanize Spar Finish

On your Motor Boat or Canoe

It is the most durable varnish you can get. Will not turn white, crack, chip off or grow flat. Water does not hurt it.

The United States Navy has used thousands of gallons on their Battle Ships and Cruisers.

To get you to try Kyanize we make the following

Trial Offer

If your dealer can't supply you send us a one dollar bill and mention this advertisement and we will send you a full quart can of Kyanize Spar Finish, express paid, and send you free of charge a splendid 2½-inch chisel Varnish brush to put it on with. After you have tested the Kyanize on your boat, if it is not perfectly satisfactory and all we claim for it, return us the empty can by mail and we will return your dollar.

Boston Varnish Co.

Everett Station :: BOSTON

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main bearings, enclosed tappets and valve stem, and a simple and efficient lubricating system, while its generally "classy" appearance and evidence of power and staying qualities make it appeal to the motor boat owner who wants a 4-cycle engine of this size.

Full literature and prices may be had from the Kermath Manufacturing Company, Department Y, Detroit, Mich.

Bridgeport Motors

The exhibit of the Bridgeport Motor Company not only consisted of a full line of Bridgeport motors, but a number of their engines were seen in different boats at the Show. The Bridgeport is a 2-cycle, 3-port motor that has earned an enviable reputation for reliability, and has lived up to the slogan of the company that it is "The Motor that Motes."

Bridgeport motors are made in fifteen different sizes, in from 1 to 3 cylinders, to fit any type of boat. A new device which the Bridgeport Company is exhibiting this year is an oil transformer, with which their engines can be fitted so that they can operate equally well on kerosene. With the use of these transformers only one carburetor is required, the motor being started on gasolene and then switched to the heavier fuel without change of adjustment. The heated air to obtain the proper vaporizing of kerosene is furnished by means of a double jacket around the exhaust pipe. From the first jacket the air is drawn to the carburetor, furnishing it with high-heated air, and from the carburetor the mixture is led into the second jacket, where it is thoroughly vaporized before passing into the crank case. This transformer gives flexible speed control, a feature which will be thoroughly appreciated.

A full description of this device can be had from the Bridgeport Motor Company, Bridgeport, Conn., asking for their Catalogue L.

Lawley Marine Motors

The George Lawley & Son Corporation, who have a large ship building plant at Neponset, Mass., have entered the marine engine field with a heavy-duty motor for yacht use or for any class of vessels where reliable, internal-combustion motors are required. These engines are made in three sizes—20, 40 and 60-horsepower, 2, 4 and 6 cylinders, respectively, with 6½-inch bore by 9-inch stroke, turning up 400 revolutions per minute. They are made of the very best material, and are designed with a view, not only to accessibility, but to insure quiet running throughout, having as few movable parts as possible. The cylinders are separate castings. The whole outfit is very substantial and neat looking, and bears the marks of Lawley standard work throughout.

Speedway Engines

Among the engines shown by the Gas Engine & Power Company and Charles L. Seabury & Co., Con., were a 4-cylinder, 4½-inch by 5-inch, 18-22-horsepower, and a 4-inch by 4½-inch, 4-cylinder, 12-16-horsepower engine, designed especially for yacht tenders, etc.; a 6-cylinder, 8½-inch by 10-inch Reversible Speedway engine of 125-165 horsepower, a 6-cylinder, 6-inch by 6-inch Speedway engine of 50-60 horsepower, and a 200-horsepower high-speed engine, with which the day cruiser Babette and the 30-foot monoplane for Mr. Carl G. Fisher, of Indianapolis, were equipped. One of the highest-powered engines at the Show was the 265-horsepower, 11-inch by 12-inch Speedway reversible gasolene motor, made in six cylinders.

Hartford Engines

The features which the Gray & Prior Machine Company, of 656 Suffield Street, Hartford, Conn., emphasize in their engines are long life, interchangeable parts, absence of break-downs and stoppages and the minimum number of parts. Strength and durability have not been sacrificed for lightness, and repair parts can always be had promptly and can be relied upon to fit.

These engines are 2-cycle motors, made in from 3 to 20 horsepower, single and double-cylinder, and are equipped with Ball reverse gears, made by the New York Gear Works. Special attention is given to testing them before they are placed on the market, and each one must come up to the most rigid requirements and stand the minutest examination, the horsepower being guaranteed by the Gray & Prior Machine Company. This company will be glad to furnish more detailed information upon request.

Boat and Engine Equipment and Accessories

Pyrene Extinguishers

The Pyrene Manufacturing Company, of 1358 Broadway, New York, again had an exhibit of their well-known extinguishers that was not only attractive but very interesting to boat owners who have to equip their craft with fire-fighting appliances to meet the requirements of the Federal Inspection laws. The Pyrene extinguisher is of the squirt-gun type, and will throw a continual stream of Pyrene a distance of 30 feet. The efficiency of Pyrene lies in the fact that it is a combination of powerful gases in liquid form, maintained without pressure and void of moisture. When it is subjected to heat of over 200 degrees F. it is transformed into a heavy, dry gas blanket which separates the two elements—flame and the burning substance—thereby completely extinguishing fire by simply lifting off the flame. The gases are entirely harmless, and the company say that they will not injure any material that has not been touched by the flame.

Gies Reverse Gears

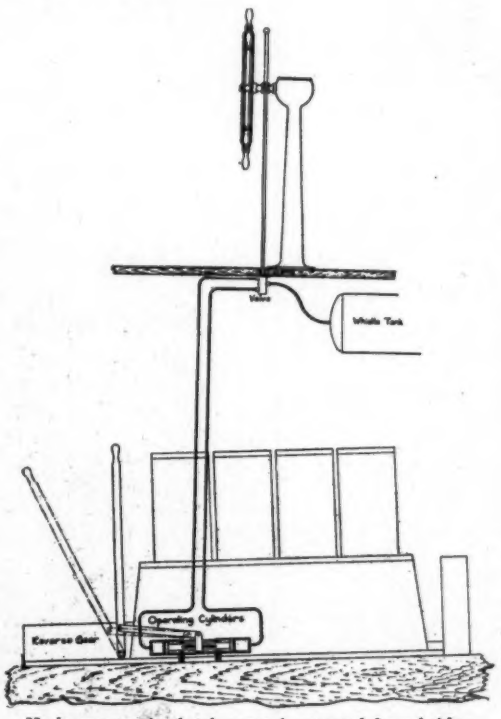
For 1913 the Gies Gear Company, Boydell building, Detroit, Mich., have three sizes of gears on the market of the following rating: Special No. 1, for engines developing 1½ horsepower per 100 revolutions; model A, for transmitting 2½ horsepower per 100 revolutions; model B, transmitting 4 horsepower per 100 revolutions.

They are an open gear, but, realizing the advantage under certain conditions of having the moving parts covered, the company has designed a gear cover with all the good features of an enclosed gear without impairing the efficiency of their present model. The company state that 20,000 of these gears have been sold and are giving satisfaction to their owners.

A New Hyde Clutch Control

In addition to a large and representative line of Hyde turbine propellers, which are already well-known throughout the motor boat world, the Hyde Windlass Company, of Bath, Me., showed a pneumatic clutch control that was exceedingly interesting to boat owners, as it fills a long-felt want for a clutch control that can be operated easily from any desired point. A sectional cut showing the principle of operation and the method of piping the compressed air is shown here.

As the controlling valve can be operated with great ease from any convenient position, such as the steering stand, the advantages over the former hand-operated devices are obvious. In addition to the pronounced advantages in controlling the movements of the boat, the feature that especially appeals to the practical engineer-yachtsman is the extreme simplicity of the device and the total absence of any delicate parts requiring care or adjustment, there being not even a stuffing-box gland to require attention.



Hyde pneumatic clutch control operated from bridge

Splitdorf Magnetos and Generators

The Splitdorf Electrical Company, of 98 Warren Street, Newark, N. J., showed a number of their latest types of magnetos, lighting equipments and generators for marine purposes. The company is in the field with a practical, simple equipment for motor boats, consisting of a highly efficient generator, fuse box and ammeter. All of the controlling parts are incorporated in this machine, which is dust, oil and water proof. In this system the battery is floated on the line while the generator contains regulating features to compensate for the different rates of speed and to control the output.

Four of the new Splitdorf magnetos, of the well-known type, also made their appearance this year with a number of minor changes to give the new models smoother and more compact appearance.

With the recent sailing of O. J. Rohde, treasurer and general manager of the Splitdorf Electrical Company for Europe another step was taken in the Splitdorf policy to secure absolute service for users of its ignition devices. Mr. Rohde took with him a corps of experts on magnetos, coils and ignition appliances, and they will be established in Europe, with London as a headquarters, to attend to the wants of Americans on the other side, and also to further the use of Splitdorf devices. Mr. Rohde has already systematized the New York service station to a degree of perfection.

Ball Reverse Gears

The improved Ball reverse gear, manufactured by the New York Gear Works, of 59 Milton Street, Brooklyn, N. Y., were seen on a number of engines at the New York Show. This is an all-spur planetary gear made of the best hardened steel, invented by this company, the New York Gear Works being the first to build and operate a reverse gear of this type. Gear housing and engine coupling are made integral, so that the gear becomes part of the engine, requiring no support at the after end. They come in eight sizes, for from 5 to 50 horsepower, for both high and low-speed motors.

The gear with the unbroken main shaft

The main shaft extends through the gear from bearing to bearing. Since it is strongly supported by these bearings, and is not divided at the center, it *cannot* possibly sag and cause the troubles so common to some gears.

You need a "Baldridge" in an emergency like this.

Baldridge Reverse Gear

We have prepared a little booklet that explains in detail this exclusive feature of the "Baldridge." Send for it. It is worth careful reading if you really want a gear of absolute reliability. Thousands of users praise the "Baldridge." The booklet explains why, in a way that you will appreciate. Send for it.

¶ If you are in the boat business, write for our dealer's proposition. Some good territory still open.

The Baldridge Gear Co.
698 W. Grand Boulevard
DETROIT, MICH.

Export Office: 47 Broadway, N. Y. City
Handled in Canada by The Canadian Fairbanks-Morse Co., Ltd.

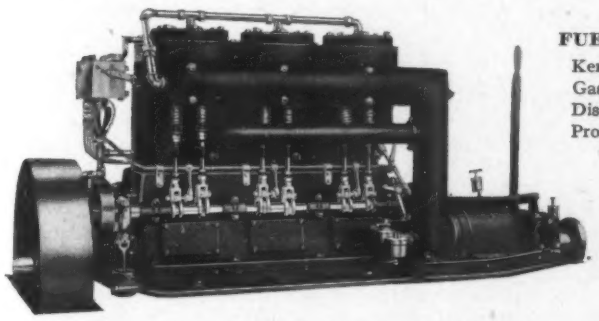
"WOLVERINE"

The Motor with the Bore and Stroke

3c. Per Ton
For Carrying Freight 160 Miles

A 75 H. P. "WOLVERINE" Engine operating on Suction Producer Gas enabled the owners of the 115′ schooner "Dr. Lykes" at Miami, Fla., U. S. A., to carry freight a distance of 160 miles at the rate of 3c. per ton fuel cost, an achievement unparalleled by any other gas engine made

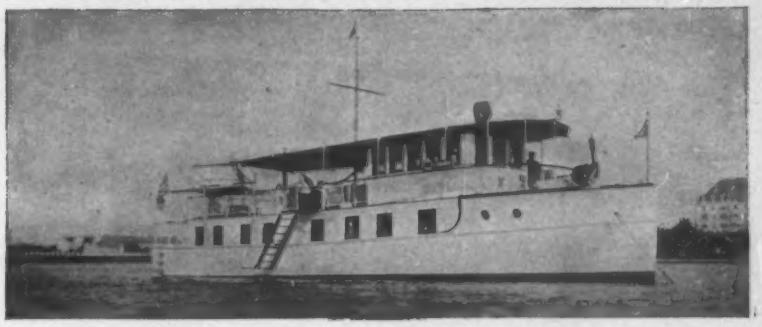
You who want **Reliability** and **Economy—Real Service** from an engine, investigate the "WOLVERINE."



FUELS:
Kerosene
Gasoline
Distillate
Producer Gas

Our catalog No. 70 gives full information. Write for it today.

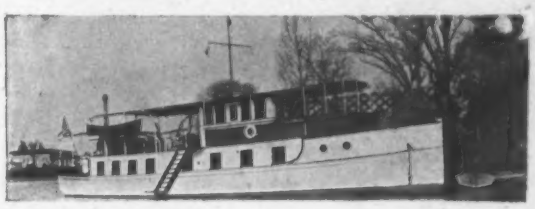
WOLVERINE MOTOR WORKS
Bridgeport, Conn., U. S. A.
(Formerly Grand Rapids, Mich.)



70-FT. LANAI Sold through Messrs. Tams, Lemoine & Crane, to Ex. Com. A. C. James, of the New York Yacht Club. Made remarkable showing of sturdiness in maiden trip, despite ice-floes and ocean storms.

HAVE you ever figured that such a 70-ft. houseboat as shown herewith will give you every comfort that a hundred-foot cruiser offers?

That it cost much less to build, much less to man, much less to maintain?

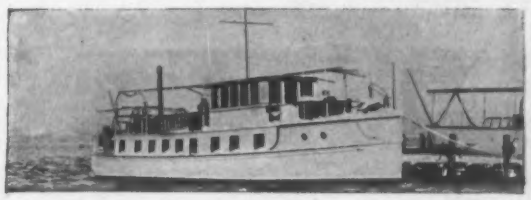


70-FT. CALABASH
Designed and built by us for Mr. W. J. Matheson, New York; has, during the past couple of months, created great interest throughout the Chesapeake Bay district

That it has a larger cruising radius, and a gasoline consumption of half as much per mile per hour as the cruiser which has equal comfort and accommodations?

Specializing on Boats of 60 to 100-ft.

has taught us certain facts that every man who intends to build a boat of such size should possess.



70-FT IBIS
Designed and built by us for Mr. F. F. Christy, New York; left our yards Christmas week for Florida.

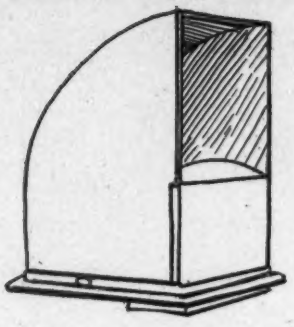
Shall we give you the benefit of this experience? Write what you have in mind building, and let us present the facts.

Mathis Yacht Building Co.

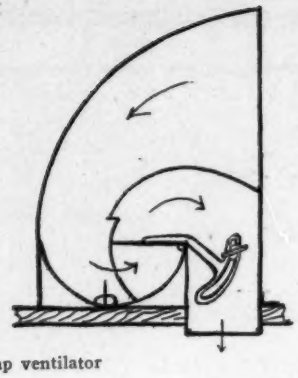
Specialists in 60 to 120-ft.
Houseboats and Cruisers

Front and Erie Sts. Camden, N. J.

Consult YACHTING'S Information Department on any of your problems. Its service is absolutely free.

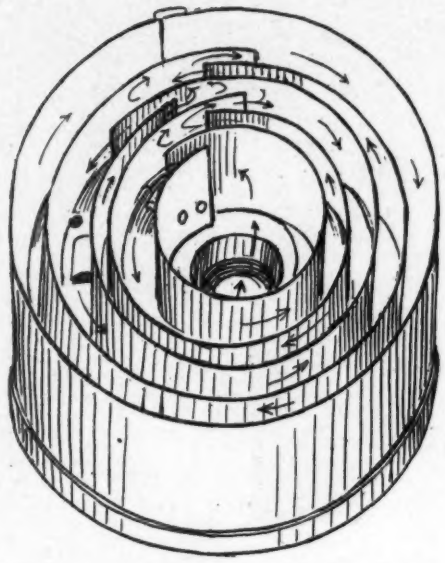


Patterson waterproof trap ventilator

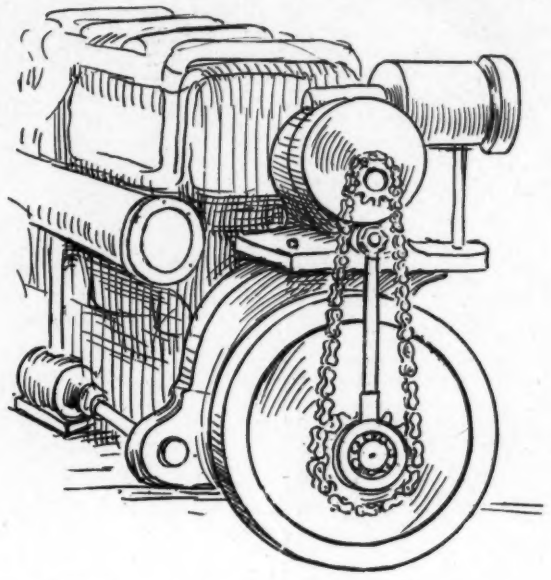


Gray-Hawley dummy stack and whistle

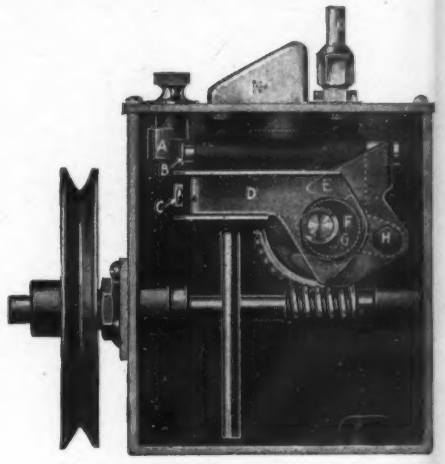
Dirigo whistle outfit



Sectional view of Maxim Silencer for noiseless exhaust



Hartford electric starter attached to Speedway engine



Sectional view of Detroit force feed oiler

Maxim Silencers, Star Pumps and Boat Equipment

One of the most interesting exhibits among the accessories was that of W. & J. Tiebout, of 118 Chambers Street, New York, wherein they showed a large line of marine supplies, motor boat hardware and equipment. Among the features of this exhibit were the Star air pump for whistle outfits and Star bilge pumps, which have earned an enviable reputation for themselves among boat owners in the past few years. Both of these pumps are driven from eccentrics attached to the propeller shaft, and are thus entirely out of the way. No appreciable extra power is required to operate them.

The new Maxim Silencer for exhausts of motor boats was also exhibited, a sectional model of one of these being shown. This was the first time that the interior of one of these mufflers has been exposed owing to the fact that complete patents have only recently been issued. The interior arrangement is very interesting, and the principle on which the noise of the escaping gases is eliminated is shown in the sectional drawing herewith.

The silencing of the noise is accomplished by utilizing the centrifugal force of the exhaust gases, and permitting them to whirl until their energy has been dissipated. There are a number of chambers surrounded by the outside shell of the silencer. The exhaust gases from the engine are led into the innermost of these chambers. The gases discharge tangentially into the next chamber and continue to whirl until friction slows them down, after which they escape into the third chamber, also tangentially. In this chamber they are again whirled, and their exit cannot occur while they have a high velocity. When they have slowed down enough to permit, they make their escape into the outer space practically noiselessly.

Back pressure is entirely avoided, because no gas issuing from the engine encounters an obstruction. The silencer may be used either with or without cooling water.

They are easily attached and are made in all sizes. In writing W. & J. Tiebout for further information mention bore, stroke and size of exhaust outlet of engine.

Baldridge Reverse Gears

The Baldridge Gear Company have placed on the market for 1913 five new models of their well-known Baldridge gears as follows: Model A, suitable for engines 4½ to 12 horsepower; model B, 7 to 20 horsepower; model C, 10 to 30 horsepower; model D, 15 to 45 horsepower; model E, 25 to 60 horsepower.

These new models have retained all the features of the older model with many improvements and refinements.

The important fact about the Baldridge gear is that it gives an unbroken main shaft, which does away with the necessity of driving through a broken shaft, as in some of the other makes. By the use of this unbroken shaft all wear and out-of-true motion which come from it are eliminated and much trouble is averted. In the Baldridge gear the main shaft is supported by the propeller-end bearing, and extends far enough forward to rest securely on the engine-end bearing so that the shaft cannot possibly get out of alignment. In general design the Baldridge gear is of the balanced planetary type, with the cage containing the train of gears acting as the driving instead of the driven member.

The cage is fitted with a two-step gear on each side and couples to the crankshaft of the motor by a flange. The double gear construction insures perfect balance, and eliminates side strain, wabbling or vibration, resulting in making the gear unusually long-lived.

The company has prepared a booklet explaining in detail this exclusive feature of the Baldridge gear. If you are a boat owner it will interest you, and may be had by writing the Baldridge Gear Company, 698 West Grand Boulevard, Detroit, Mich.

Krice Carburetors

Practically every Gray engine is equipped with a Krice carburetor, made by the Krice Carburetor Company, of Detroit, Mich., and the makers say they have given universal satisfaction where used. The principle on which these carburetors operate is in the application of an annular or round spraying crevice. The gasolene emerges from this crevice, which is only eight to ten one-thousandth of an inch wide, and creeps up the side walls of the mixing chamber instead of being sprayed. The gasolene is thus spread out ready for rapid vaporization. A great economy in fuel consumption is claimed for this system. The Krice carburetor comes in the following sizes: No. O, ¾ inch; No. 1, 1 inch; No. 2, 1¼ inches; No. 3, 1½ inches; No. 4, 2 inches.

All Kinds of Detroit Oilers

The Detroit force-feed oilers, made by the Detroit Lubricator Company, of Detroit, Mich., were seen on a great many of the engines at the motor boat shows, and their fine points were thoroughly appreciated by engine users who know. These oilers are made in many styles to fit the various requirements of different makes of gas engines.

The Detroit mechanical force-feed oiler consists of one or more pumping units—one unit to each feed—actuated by a driving shaft which is driven from some moving part of the engine by either belt, chain, ratchet or gear. This entire mechanism is contained in the tank or reservoir where the oil is stored. The capacity of these reservoirs is from 1 pint to 2 gallons, with from one to thirty feeds.

Each pumping unit is a double plunger valve-

Pyrene MARK
FIRE EXTINGUISHERS

Take the Fire Danger Out of Motor Boating

SIZE 3 IN. IN DIAMETER
14 IN. LONG
WEIGHT 5 LBS., FILLED

Recognizing the presence of a peculiar fire danger, the Federal Government compels the equipment of all power craft with adequate fire extinguishing apparatus.

Pyrene Fire Extinguishers are the most effective known for fighting flames on Motor Boats. The extinguishing compound seeks out the seemingly inaccessible fire, and smothers it instantly.

Pyrene is a combination of powerful gases in a liquid form and when subjected to a temperature of 200 degrees Fahrenheit, or over, the liquid is immediately transformed into a heavy, dry, cohering, non-poisonous gas blanket which surrounds the flames and smothers them.

WRITE FOR FREE ILLUSTRATED BOOKLET

Approved by the United States Steamboat Inspection Service.

Pyrene Manufacturing Co.
1358 Broadway New York City

BOAT

Besides a long line of general boat hardware we carry a number of specialties in stock.

- Navy Anchors
- Cello Electric Light Equipments and Battery Cases
- Cutler Clamps
- Seamless Steel Gasoline Tanks
- White Metal Fittings
- Plumbing Specialties
- Maxim Silencers
- Forbes Mufflers
- Perfect Electric Compasses
- Brown Folding Stool
- Jeffery's Marine Glue
- Shipmate Ranges
- Skene Chocks
- Bull Dog Paint and Varnish Remover
- Gillespie's
- Smith's Spar Coating
- Devoe's Marine Paint and Varnishes
- Valspar
- Columbian Yacht Rope
- Star Yacht Blocks

OUR NEW DISCOUNT CATALOG gives lowest prices on these: Sent for 8c. stamps.

A. S. MORSS COMPANY
41 HIGH STREET, BOSTON

HARDWARE

TRADE MARK.

My Boat and Varnish

Anyone who owns a boat can afford the "best," because between the "best" and others there is little difference in price.

For the Spring coating put on before going into commission and when there is time to do everything carefully and leisurely the varnish should be a "slow drier," because one indisputable varnish-maker's fact is "slow drying, long lasting."

The "slow drier" has every real advantage and but one apparent disadvantage—water may turn it bluish white. It soon regains its *original* color and by out-living any "quick drier" ever made proves that thereby it has not deteriorated.

Among "best varnishes" we have a reputation—ask any designer, builder or owner about

Smith's Spar Coating

or about MARINITE for use on wood or metal work generally awash. It "won't turn white." Dries dust-free in from three to five hours.

Manufactured by

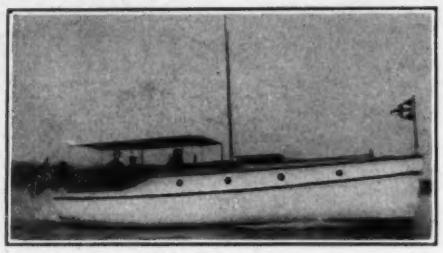
Edward Smith & Co.
Varnish Makers for 86 Years
Long Island City New York

Consult YACHTING'S Information Department on any of your problems. Its service is absolutely free.

BOATS OF QUALITY

STEAM, SAIL, GASOLENE OR WHITE ASH POWER

Cruisers, Speed Boats, Hydroplanes



31-ft. Milton Special

MILTON BOAT WORKS

RYE, N. Y.

DESIGNERS and BUILDERS

STORAGE REPAIRS SUPPLIES

20-ft. Milton Runabout

less pump. One plunger pumps the oil from the reservoir through the sight-feed nozzle, from which it drops (always in plain sight), while the other plunger takes the oil from the sight-feed chamber and forces it to the part of the engine to be lubricated. The sectional illustration of the tank or reservoir herewith shows this mechanism clearly. A very interesting catalogue descriptive of these oilers and other Detroit Lubricating Company's products may be had by writing the Detroit Lubricator Company, Detroit, Mich., asking for Catalogue P 69.

Valspar Marine Varnish

With the rapid increase in the number of power boats and yachts, Valentine & Co., makers of all kinds of varnishes, have made unusual efforts, both at the motor boats shows and elsewhere, to educate boat owners to the fact that it was possible to make a marine varnish that would withstand the action of fresh and salt water and would not turn white. Realizing the demand for a high-grade spar varnish for yacht use, this company early turned their attention to producing such a varnish, and conducted extensive laboratory experiments, the result of which is Valspar, a varnish every yachtsman now knows.

To prove their assertion that this varnish will not turn white, Valentine & Co. have subjected it to severe tests at all the motor boat shows of recent years. One of these tests consists of placing a boat varnished with alternate layers of Valspar and other makes of varnish in a tank of water and keeping it submerged. At the end of a few days the other varnishes turn white while Valspar keeps its color. Another test consists of placing a number of boards varnished with various makes of varnish under a running stream of water, with the result that the one covered with Valspar retains its color throughout the test.

Valentine & Co. gave out some very attractive literature on their varnishes during the show. This may be had by writing Valentine & Co., 456 Fourth avenue, New York, mentioning this magazine.

An Efficient Fire Extinguisher

Not only the fact that the United States Government regulations insist upon a reliable fire extinguisher being a part of every motor boat's equipment, but also the desire to insure absolute safety when going shipmates with a quantity of gasolene, is responsible for every power boat owner seeing that he has efficient fire-fighting appliances. For this reason these people will be interested in knowing that at the test recently given at the Brooklyn navy yard, where a number of extinguishers by various companies were tested out for use on the tenders in the United States navy, that the Reliable fire extinguisher, made and sold by C. D. Durkee & Co., of 2 South Street, proved so efficient that the makers have received a first order for 25 of these extinguishers for the navy.

This extinguisher is contained in a brass cylindrical tube with squirt gun mechanism, particularly handy and suitable for use on motor boats. It is a liquid extinguisher, especially efficient for gasolene, oil and electric fires.

Further particulars may be had by writing C. D. Durkee & Co., 2 South Street, New York City, mentioning this magazine.

Michigan Wheels

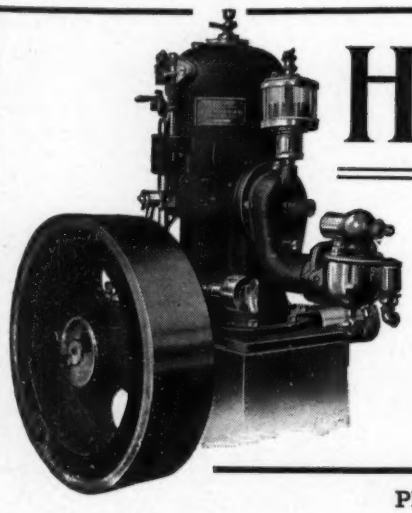
The Michigan Wheel Company exhibited an interesting line of Michigan wheels, made in all sizes and types to fit any class of motor boat. These wheels are the result of scientific study and twenty years of practical experience by one of America's best-known naval architects. They are made of special Hercules bronze, a composition which is strong, tough and practically unbreakable. They are made in all sizes and many shapes, both two and three-bladed. Among the types are the Standard speed wheel, Perkins speed wheel, Twentieth Century speed wheel, Hydroplane speed wheel for racers, Weedless wheels and towing wheels. The Michigan Wheel Company also makes a reversible propeller wheel with detachable blades. In addition the company manufactures all types of motor boat steering wheels, marine hardwood, safety crank starter, power bilge pumps, under-water exhausts, etc.

In addition to this wheel the Michigan Wheel Company have placed on the market for 1913 two reverse gears, one of the multiple disc and the other of expansion ring type. These come in both closed and open types, and the Michigan Wheel Company draws attention to the fact that they are powerful, light and compact. A full description of these gears and Michigan wheels may be had by writing the Michigan Wheel Company, 1130 Monroe avenue, Detroit, Mich.

Jeffrey's Marine Glue

The exhibit of L. W. Ferdinand & Co. at the shows was interesting to those who appreciate a tight deck that will not leak. This company showed samples of Jeffrey's marine glue for deck seams and all boat work where a high-grade glue is required that will not crack or dry out under the hardest use.

The flexibility of this glue is one of its most valuable qualities, as it allows the timbers to contract and expand under the heat of the sun or the dampness of the water and still retains its adhesive powers. Samples of this glue, with instructions for using it and information as to which qualities are best adapted for the different classes of work, may be had by writing L. W. Ferdinand & Co., 201 South Street, Boston, Mass., mentioning this magazine.



HARTFORD 2-Cycle Marine Engines

Made in single and double cylinders thoroughly guaranteed in every way.

Model X as shown. 5 and 10-H. P. Single, 10 and 20-H. P. Double
Regular Model. 3, 5, and 7-H. P. Single, 6 and 12-H. P. Double

The Gray & Prior Machine Co., 656 SUFFIELD STREET, HARTFORD, CONN., U.S.A.

BRANCHES: 117 Commercial Street, Portland, Me., 300 East Pratt Street, Baltimore, Md.

George L. Chaisson

Practical Boat Builder

16 Elmwood Road

Telephone Connection **Swampscott, Mass.**

Chaisson's Cabin and Auxiliary Cruisers

designed and built to order to meet special requirements of size, finish and equipment; have pleased many particular people. We can please you. Write us, outlining briefly your requirements, and allow us to submit specifications and prices.

BOATS

Dories, Tenders, Skiffs and Power Boats

of Every Description.

YOUR WHITE BOAT CEDAR—

Make Sure of It!

You can't be too careful in buying White Cedar or any other Boat Wood. Usually it is impossible for you to inspect all of it personally, and your only safeguard is to deal with a firm whose reliability is beyond all question!

MAHOGANY **QUARTERED WHITE OAK**
WHITE OAK FOR BENDING **LONG LEAF YELLOW PINE**
HACKMATACK KNEES

Also a Special Lot of CLEAR White Cedar

Wm. P. Youngs & Bros. offer all of these Boat Woods in uniformly good grade. During fifty years in business, this firm has established a most enviable reputation for the high plane on which all its dealings are conducted.

Call, 'Phone or Write

We should like you to see the stock we carry and how scrupulously it is cared for, and we will gladly put at your disposal all of our information regarding Boat Woods.

If prompt action is necessary, we are in a position to quote at a moment's notice prices either f. o. b. New York or delivered at your nearest station.

WM. P. YOUNGS & BROS.

ESTABLISHED OVER 50 YEARS

FIRST AVENUE & 35th STREET **NEW YORK**

TELEPHONE, 2514 MADISON SQ.

SPLITDORF

"Always There"

The SPLITDORFLITE electric lighting generator is the smallest, most compact and only self-contained generator on the market. It affords a positive source of illumination, spotlessly clean, unaffected by weather conditions, and, once properly installed, ends an owner's lighting troubles for all time.

Write for new catalog

SPLITDORF ELECTRICAL CO.

98 Warren Street, Newark, N. J.

KRICE Carburetor 20% More Power

30 DAYS TRIAL

We absolutely guarantee the Krice Carburetor to use less gasoline—give better control and 20% more power. Your money back if it doesn't.

The only sure way to know that you are getting *all* the power from your engine is to try a Krice Carburetor.

Write to-day for literature.

KRICE CARBURETOR CO.

1205 Oakland Ave. Detroit Mich.

YOU CAN'T GET THIS *BIG VALUE* ANYWHERE ELSE.

We make the unqualified statement that there isn't a boat value on the market that equals the

Rice 20-foot Special at $275.00

Complete with 4-H. P. motor. Speed 8 miles. Boat *and* engine fully guaranteed.

Building this particular model in large numbers, with "overhead" reduced by years of study to the very lowest point, and selling *very close*—alone makes this price possible.

Other builders *must* charge from 1-3 to 1-2 more.

Don't Take Our Word

For this, but in your *own* interest at least let us *prove* our case by the evidence of satisfied users, and the actual *records* of the boats themselves.

Send for catalog (free on request), and get the details of construction. You will be astonished at how thoroughly *good* these boats are *through and through*. Don't forget—we have been building and backing them for years.

RICE BROTHERS COMPANY

(Dept. J.)

EAST BOOTHBAY, MAINE, U. S. A.

HOTEL PURITAN
Commonwealth Avenue
THE DISTINCTIVE BOSTON HOUSE
Write for attractive booklet with guide to Boston & vicinity
A.P. COSTELLO

Luxeberry Spar Varnish

Berry Bros., of Detroit, Mich., makers of fine varnish and paints for marine use, had a very attractive exhibit at the Show, where they demonstrated the quality of their Luxeberry Spar Varnish for yacht use. A number of water tests were made at the exhibit of this varnish, showing how successfully it withstands contact with both salt and fresh water and remains bright under the severest conditions. Berry Bros., having a thorough knowledge of the exacting requirements of marine varnish and with fifty-four years of experience as varnish makers behind them, recommend their Luxeberry Spar Varnish to give the very best possible service.

The mast and spars of the little motor boat Detroit, which crossed the Atlantic last summer, were coated with this spar varnish, and the captain of that boat, Thomas Fleming Day, states that they were constantly deluged with salt water during the trip, yet stood up in excellent fashion.

Other marine products of Berry Bros. are Luxeberry white enamel, Apex varnish remover, etc.

China and Glassware for the Yacht

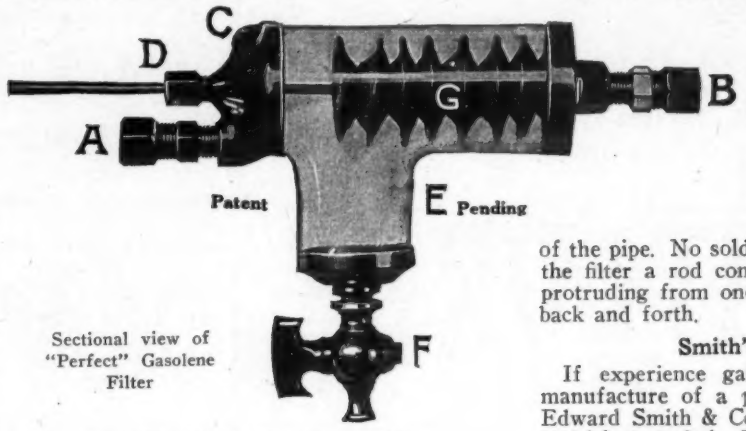
Higgins & Seiter, of 9 East Thirty-seventh Street, New York City, had a very attractive exhibit at the Show, consisting of a number of sets of fine yacht china and glassware, made especially for yacht use. The china shown was in many attractive patterns, with the owner's club and private signals crossed on each piece, while the glassware was all marked in the same way.

Higgins & Seiter will make up a set of china with the owner's insignia in this way at a very moderate figure. Anyone outfitting his yacht for the season cannot do better than by going to Higgins & Seiter for their china and glassware.

Woolsey Copper Paints

The C. A. Woolsey Paint & Color Company, of Jersey City, N. J., exhibited the many samples of marine paint specialties which they manufacture. Woolsey's copper paint has earned an enviable name for itself in the yachting world as an anti-fouling, worm-proof paint for use on wood-bottomed boats in either salt or fresh water. This copper paint comes in dark brown or dark red, Special red and Special green, while they manufacture also a light green anti-fouling paint for racing boats, giving a hard, smooth surface. They also make a copper bronze paint for racing purposes.

Among the specialties which they showed were yacht white and yacht black paints, elastic seam compound, canoe enamel, etc.



Sectional view of "Perfect" Gasolene Filter

The "Perfect" Gasolene Filter

Everyone at the Show who has ever experienced the annoyance of a clogged fuel pipe was particularly interested in the new gasolene filter exhibited for the first time by the Gasolene Filter Company, 145 West Forty-fifth Street, New York.

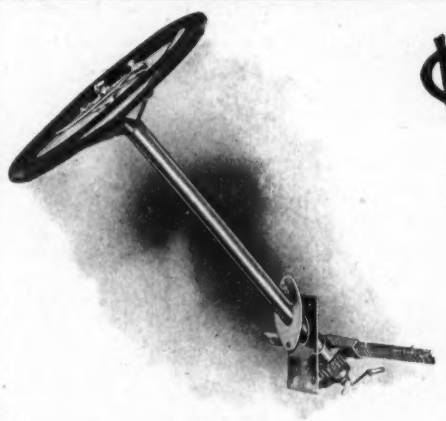
The "Perfect" gasolene filter has been devised to meet the demand for some effective means of preventing dirt and water in gasolene from reaching the carburetor, where it always causes much trouble. The filter is a nickeled brass cylinder, 1¾ by 4 inches in size, containing a chamois bellows, or "accordion," equivalent in straining capacity to 15 square inches of chamois skin. All gas must pass through this before entering the pipe that leads to the engine, the filter being placed at any convenient point between tank and carburetor.

All gas tanks contain more or less dirt and rust, and are subject to conditions that cause moisture to condense inside the tank. These impurities, together with others that may get into the tank when it is being filled, are caught by the filter, which is provided with a large trap and draw-off valve. The filter is furnished with compression screws to fit any pipe line, and to install it it is only necessary to cut out a length of pipe corresponding to the distance between the intake and outlet screws and tighten them over the ends of the pipe. No soldering is required. To cleanse the filter a rod connected with the bellows and protruding from one end is loosened and moved back and forth.

Smith's Spar Coating

If experience gained by many years in the manufacture of a product counts for anything, Edward Smith & Co.'s Spar Coating and marine varnishes, made by Edward Smith & Co., of Long Island City, N. Y., should be very nearly the "last word" in varnishes, for into every can of their varnish goes 86 years of experience.

It is a well-known fact that the best and most durable varnish is a slow dryer, a quick-drying varnish not having anywhere near the same length of life. Smith's Spar Coating is a slow-drying varnish, which has unusually long life and durability, and the company claims that it will stand constant exposure to water and weather better than any other varnish.



AUTO BOAT STEERERS

combine strength and correct mechanical design. Built in two styles: with the rack and pinion, also with the drum.

The post is made of heavy brass, unusually strong, and is encased in a tubing which gives an attractive finish. The Spark and Throttle Control is incorporated in the steerers, both controlling levers being conveniently placed inside the wheel. Either style has many features to be found exclusively in Steerers. They insure safe and satisfactory service on any size runabout or auto boat.

Ask your dealer for Auto Boat Steerers, **Anchors, Wheels, Deck Plates, Pumps, Compasses, Rowlocks, Boat Nails, Cable Chains, Hooks, Lights, Lanterns**—in fact anything in the Marine Hardware line.

WILCOX, CRITTENDEN & COMPANY, Inc.
MIDDLETOWN (ESTABLISHED 1847) **CONNECTICUT**

Two Separate Noises in the Exhaust

There are two separate noises in the exhaust of every high-speed four-cycle and two-cycle gasoline engine.

The primary noise is caused by the sudden discharge of the exhaust gas into the atmosphere. The secondary noise is the snap or sharp "crack" noise made by the exhaust entering the air at a higher rate of speed than the sound waves travel.

Ordinary mufflers do not stop the secondary noise. The resistance they interpose causes back pressure, loss of power and increased fuel consumption.

Maxim Silencer
for Motor Boats
Suppresses Both Noises

Constructed on the same principle as the famous Maxim Gun Silencer, it annihilates both the primary and the secondary noise. It not only renders the motor actually noiseless but it also improves the engine action and saves gasoline. The Silencer is, of course, entirely above water.

Easily attached to any engine. Ask your dealer to get it for you. Write for descriptive literature, mentioning the bore, stroke of engine, number of cylinders and size of exhaust outlet.

WILCOX, CRITTENDEN & CO., Inc.
10 South Main St., Middletown, Conn.

Sole Manufacturers and Distributers for United States and Canada of Maxim Marine Silencers.

HOLMES LONG STROKE ENGINES

More Speed More Endurance
Greater Accessibility
in the

Built-for-Business Holmes

than in any of the so-called

Heavy Duty Engines

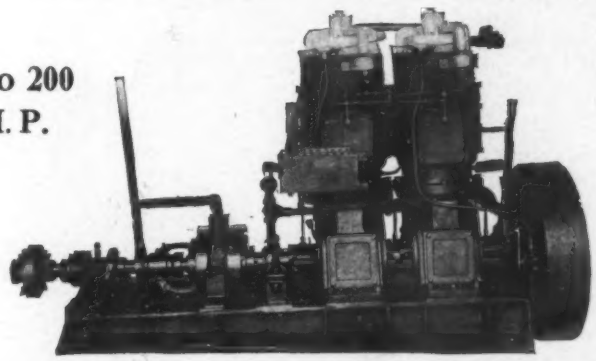
We claim all the talking points and

WE CAN PROVE IT

The Holmes Motor Co., Inc.
West Mystic Connecticut

Remington Oil Engines

7 to 200 H. P.



"WITHOUT AN EQUAL FOR SIMPLICITY"

35 H. P. SPECIAL NAVY TYPE

Remington Oil Engines have the following advantages for Marine Work:

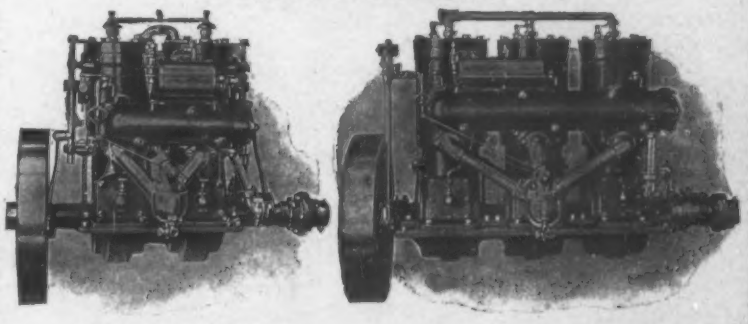
1 THEY START PROMPTLY
2 THEY OPERATE WITH CERTAINTY
3 THERE ARE NO ADJUSTMENTS
4 THEY CAN BE SLOWED DOWN
5 THERE IS NO DANGER
6 THERE IS NO IGNITION TROUBLE
7 THEY COST THE LEAST TO OPERATE

Catalog Y gives full information

The Remington Oil Engine Co.
120 Broad Street, New York

Bridgeport
"THE MOTOR THAT MOTES"

EQUIPPED WITH THE BRIDGEPORT VAPOR RECTIFIER



Absolutely no base explosions, giving *Safety, Flexible Control* and *Fuel Economy.*

The **1913 BRIDGEPORT** possesses the advantageous features of the best two- and four-cycle motor, with the undesirable features eliminated. We term it *The Advanced Two-Cycle Motor.* We have fifteen sizes in work and pleasure models. Send for free catalog L.

Our 1913 models are fitted with the *Bridgeport Oil Transformer,* with which they operate perfectly on

KEROSENE!

THE BRIDGEPORT MOTOR COMPANY, Inc.
BRIDGEPORT, CONN., U. S. A.

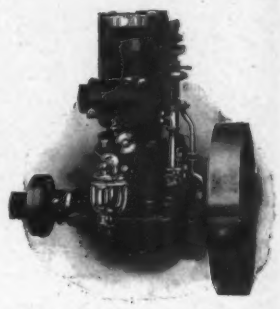
Consult YACHTING'S Information Department on any of your problems. Its service is absolutely free.

Sturdy MIANUS MOTORS *Powerful*

FIFTEENTH YEAR **GUARANTEED FOR LIFE**

SPECIFICATIONS

H. P.	Number of Cylinders	Cycle	Ignition	Port	Bore	Stroke	R. P. M.	Diameter Crank and Crank Pin	Weight	Price
3	1	2	m.&b.&j.s.	2 or 3	4"	4	550	1¼"	175	$76.50
5	1	2	"	"	4⅝"	5	500	1¾"	280	110.00
7½	1	2	"	"	5 9/16"	6	450	2"	415	150.00
10	1	2	"	"	6½"	7	375	2 7/16"	675	200.00
6	2	2	"	"	4"	4	550	1¼"	300	165.00
10	2	2	"	"	4⅝"	5	500	1¾"	500	230.00
15	2	2	"	"	5 9/16"	6	450	2"	750	310.00
20	2	2	"	"	6½"	7	375	2 7/16"	1170	400.00
30	3	2	"	"	6½"	7	375	2 7/16"	2000	700.00
6	1	2	j. s. only	"	4⅝"	5	800	1¾"	270	98.50
12	2	2	"	"	4⅝"	5	800	1¾"	385	200.00



5 H. P. Mianus—1913 Model

Built according to recent United States Government specifications, and are used in nearly all of the Government Departments.

Bulletin 21, gives full specifications for the 1913 MIANUS. Sent free.

NICKEL finish.
DROP-FORGED cranks and connecting rods.
FAHRIG METAL connecting rod bearings.
IRIDIUM spark points.
Springs of IMPORTED WIRE.
FLANGE COUPLINGS.
Large bearing surface.

THE MIANUS MOTOR WORKS, STAMFORD, CONN.

We maintain the following branches to give service to our customers.

NEW YORK CITY: 76 Front St.
ST. JOHN, N. B.: 14 North Wharf
NORFOLK, VA.: 215 Main St.
NEWARK, N. J.: 158 Front St.
BALTIMORE, MD.: 128 Market Pl.
SEATTLE, WASH.: 80 W. Marion St.
BOSTON, MASS.: 12 Commercial Wharf
PHILADELPHIA, PA.: Bourse Building
JACKSONVILLE, FLA. 116 So. Ocean St.
PORTLAND, ME.: 29 Portland Pier
PROVIDENCE, R. I.: 144 Dorrance St.
EASTPORT, ME. 127 Water St.

Devoe & Raynolds Paints

The F. W. Devoe & C. T. Raynolds Company, of 114 Devoe building, New York City, showed an interesting line of their marine paints and varnishes at the Show. Among the specialties which they exhibited for this year was the Holland Yacht Enamel, for topsides and deck houses, the demand for a good enamel paint that will give a glossy, white finish having induced the company to bring out this paint.

Among the other specialties which the Devoe & Raynolds Company manufacture are Devoe Vernosite, a long-life spar varnish; Cabinite, a quick-drying interior varnish; Columbia Yacht White, Devoe Black, and Devoe Zanirex, a quick-drying varnish for emergency use.

Koven Tanks

L. O. Koven & Bro., of 50 Cliff Street, New York, exhibited at the Show a full line of their high-grade galvanized tanks for gasolene, water or air. A line of cylindrical, square and oblong tanks was shown, while a number of sectional models showing various forms of baffle plates formed an interesting part of the exhibit. Not only do L. O. Koven & Bro. carry a line of stock tanks but they will make them up to any desired shape or dimensions and to withstand any pressure.

Janney, Steinmetz Seamless Tanks

Janney, Steinmetz & Co., of Philadelphia, Pa., exhibited at Madison Square Garden a line of their celebrated cold-drawn seamless steel tanks, tinned and tested. They are guaranteed not to leak, and this fact in connection with their use in motor boats is an important one from the point of view of safety.

Harthan Wheels

The McFarland Foundry Company, of Trenton, N. J., showed a large line of Harthan speed propellers, which have come into such general favor for motor boat use in the last few years. The Harthan propellers are strictly a high-grade wheel, made of the best material, and special pains are taken to get as near an absolute balance as possible, so that purchasers can rely on getting a propeller that is true in balance and pitch. The company not only make a line of stock wheels for every style and type of boats but will make special wheels from drawings or patterns on order from their customers.

George B. Carpenter & Co.'s Marine Catalogue

Those boatmen that did not get a chance to go to the motor boat shows can still find out about all the new wrinkles in boat equipment, marine hardware, etc., by getting the 1913 catalogue of George B. Carpenter & Co., 430-440 Wells Street, Chicago, Ill. George B. Carpenter & Co. are the biggest marine supply house in the West, and their catalogue of 550 pages is a mighty useful reference book to every boat owner who has occasion to order fittings or parts by mail when he is in a hurry to get the articles ordered. This catalogue and 1913 price list will be sent on receipt of 20 cents in stamps, the 20 cents being refunded on the first order.

JEFFERY'S MARINE GLUE

THE PURPOSES FOR WHICH THE VARIOUS GRADES ARE INTENDED:

For Deck and Hull Seams of Yachts and Motor Boats
—USE—
No. 1, Extra Quality
Black, white, yellow or mahogany color. Give black the preference; it is more elastic and satisfactory in every way.
Specified by all first-class designers, and used exclusively by all the prominent builders.

For Waterproofing Canvas, for Covering Decks, Tops of Cabins, Canvas Boats and Canoes
—USE—
No. 7, Soft Quality
Black, white, or yellow. It not only waterproofs and preserves the canvas, but attaches it to the wood, and with a coat of paint once a year will last as long as the boat.

Waterproof Liquid Glue is used for the same purposes as No. 7, Soft Quality
It is ready for use and requires no heating; simply open the can and paint it on, like ready-mixed paint.
This glue will also attach cork, felt, rubber, leather, and linoleum to iron, steel, or wood.

Special Marine Canoe Glue
Best Filler for Canvas
Black, White and Yellow
Our 25c. emergency cans made a big hit. Every canoeist should carry one; it is as valuable to him as a repair kit to a bicyclist or automobilist.
It is a Johnnie-on-the-spot article that no boatman should be without.
Weight, ready to mail, 6 oz.

FOR SHIPS' DECKS USE { **No. 2, First Quality Ship Glue** / **No. 3, Special Navy Glue**

All put up in 1, 2, 3 and 5-lb. cans; also 14, 28, 56, 112-lb. boxes, either tin or wood

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AGENTS WANTED EVERYWHERE. For Sale by all Yacht, Boat and Canoe Supply Houses, Hardware and Sporting Goods Dealers. Send for Samples, Specimens, Circulars, Directions for use, etc.

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Motor Boats, Cruisers,
Auxiliaries and Engines

None Finer Built Anywhere

Are conceded to be equal to the finest in the world. There is no higher expression in the art of boat building than the product of this organization.

We build all types of boats from a ten-foot yacht tender to the largest auxiliary yachts. Wood, steel or composite construction. We work from designs prepared under our own supervision or from your naval architect's plans as preferred. Every detail of construction from start to finish is handled within our own works.

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For those wishing a power equipment we can guarantee as unreservedly as our boats, we build Lawley heavy Duty Motors. Four-cycle, two, four and six-cylinder, eighteen, thirty-six and fifty-four horsepower respectively. Also steam.

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3 Cylinder, 1" Valveless, 2 Cycle, 15 Horse Power

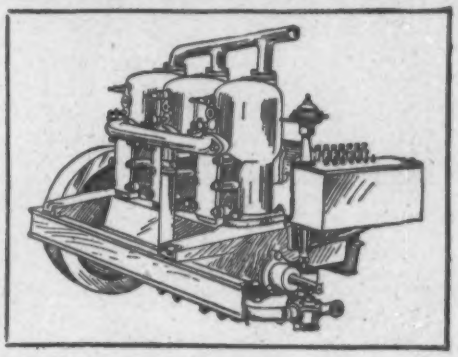
5¼ in. Bore, 5 in. Stroke

Regular price of these motors is $350

Our Price

$95

Duplicate parts can be obtained at any time.



Why spend money in repairing an old motor when for about the same sum you can

EQUIP YOUR POWER BOAT

WITH A MODERN SUPERIOR NEW MOTOR COMPLETE WITH TRIMMINGS, OILER, ETC., FOR ABOUT WHAT A GOOD REPAIR JOB WOULD COST?

We are able to sell these motors at ¼ of their real value as a result of factory clean up.

We also have other two and four cycle motors, which can be used in boats, as stationary engines, or for any purpose suited to gas engines.

ALL AT EXTREMELY LOW PRICES

TIMES SQUARE AUTO COMPANY

Largest dealers in the world. Factory Jobs, Accessories and Automobiles.

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Evinruding Through the Waves

Here's real sport. Turn any rowboat into a motor boat in less than one minute. You can do so if you have an

EVINRUDE DETACHABLE ROW-BOAT-MOTOR

It carries like a satchel as it weighs but fifty pounds, and wherever you go your "power-of-a-motor-boat" goes right with you. Any rowboat is your motor boat with this eight mile an hour motor. Its weedless propeller, reversibility and other points of interest are commented on in detail in our Illustrated Catalog, sent on request.

EVINRUDE MOTOR COMPANY, 201 T St., Milwaukee, Wis.

Members of Nat'l Ass'n of Engine & Boat Mfrs. N. Y. City Show Room, Hudson Terminal Bldg., 30 Church St.

Steering Gears

and MARINE FITTINGS for

Power and Sail Yachts

Edson Manufacturing Company

Established 1859

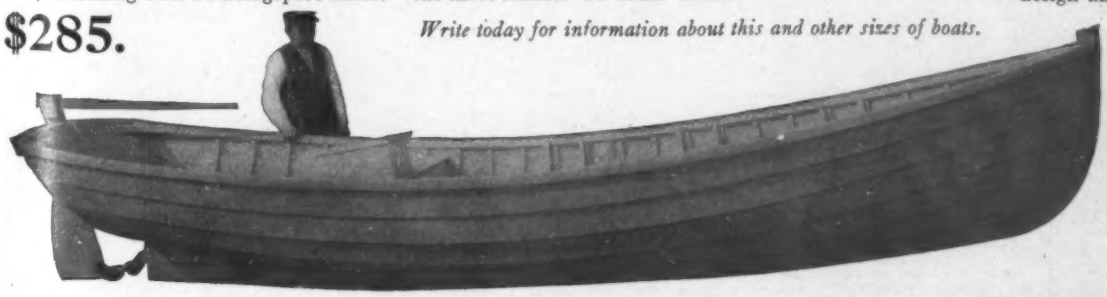
206 Atlantic Avenue Boston, Mass.

THIS IS THE MAN WHO BUILDS THE FAMOUS SEA BRIGHT DORY

This boat is 20 ft. over all with 16 ft. bottom and 5 ft. 6 in. beam. It is copper fastened and brass screwed throughout, ⅝-in. cedar planking. Made absolutely without calking, this price is for complete boat, including 4-H. P. Bridgeport Motor—the most reliable we could choose.

$285.

Write today for information about this and other sizes of boats.



SEA BRIGHT DORIES have grown famous the country over as the most seaworthy boats ever built. There is a certain "knack" in their design and construction which has defied all attempts at imitation. They are easiest to launch and easiest to land. Will ride the surf and land a ton of fish in a sea that would break an ordinary fishing boat in two.

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New York Office: Bowlor, Holmes & Hooker Co., 141 Liberty St

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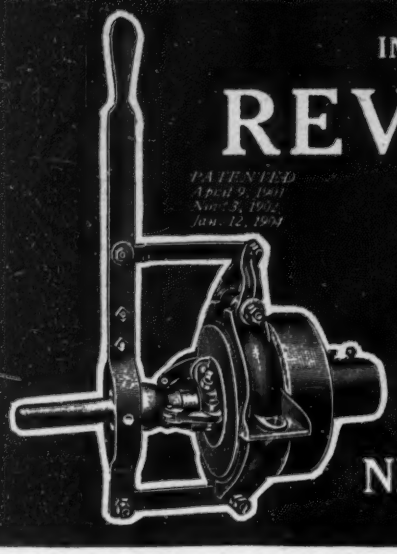

THE IMPROVED **BALL REVERSE GEAR** *for* MOTOR BOATS

Made only of

HARDENED STEEL SPUR GEARS

MOST RELIABLE — HIGHEST GRADE — EASIEST TO INSTALL

Four sizes carried in stock

Send for Catalog

NEW YORK GEAR WORKS

59 Milton Street, BROOKLYN, N. Y.

DAVIS DINKS

Are beauties and the most popular Yacht Tenders—Either row or power, in stock ready to ship.

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THE DAVIS BOAT WORKS CO.

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Most Delightful Boating There Is

All the pleasure of canoeing combined with the speed and convenience of motor boating. Thoroughly tested and reliable motor. Strong, light, speedy hull. If equipped with sponsons, absolutely noncapsizable. Write for catalog of motor, sailing and paddling canoes.

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THE AUTO-PNEUMATIC SWIMMING BELT

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Ptd.

Hollow aluminum ribs, fine textile covering, non-corrosive air-vent with stopper and fasteners. **Self-inflating. Quickly adjusted. Weighs 1½ lbs. Folds to 5x6 in.** Waterproof, indestructible. Is the only practical safeguard for seafarers and bathers—a boon to aquatic sport, a life saver. Don't risk cheap, flimsy devices. **Price $5.**

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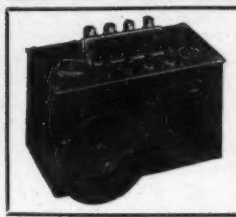

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Adjust the feed once, and then forget it. A steady, even flow of oil all the time, no waste. Starts and stops with engine. All sizes and numbers of feeds, with pulley, sprocket, ratchet or gear drive. Write for catalog P-69.

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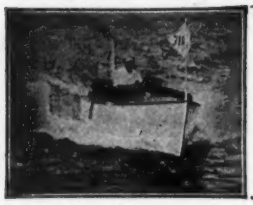

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Nothing External Revolves

DETROIT REVERSE GEAR

Starts—Reverses—Stops INSTANTANEOUSLY

All working parts submerged in oil bath at every revolution.

The Simplest, Most Reliable, Most Compact and the Smallest Perfect Marine Reverse Gear ever offered. No outside moving parts to throw the oil or grease, tear the skirts, bruise the hands or catch waste. No noise. Manufactured in sizes for from 2 to 30 H. P. We carry all sizes in stock for immediate shipment. Guaranteed for one year. Write for special prices and free catalog. Valuable information from our Consultation Department FREE to motor boat men.

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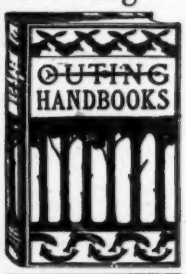

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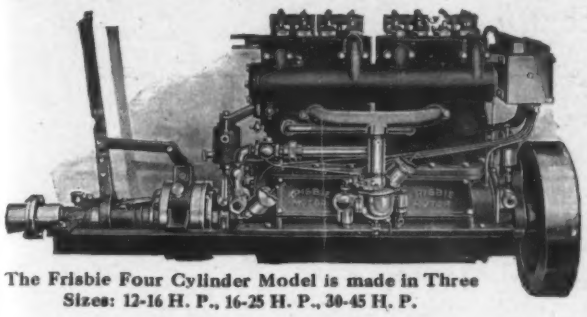

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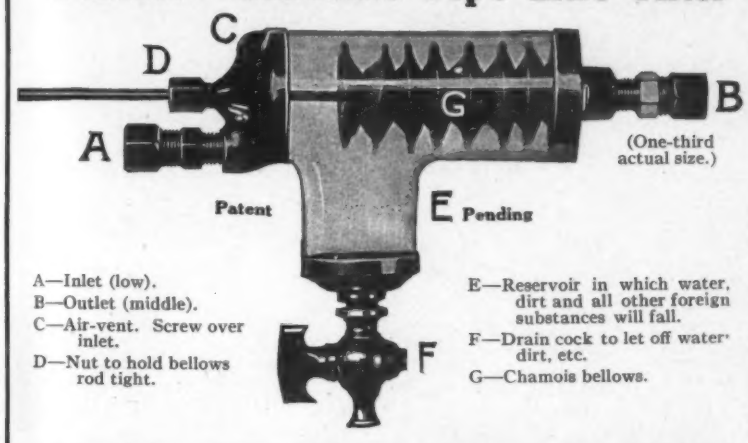
The FRISBIE Motor

Power—valves in the head. Simple—valves in removable cages. Quiet in operation. Adjustable push rods. Economical, Accessible, Refined. Four Cycle, 1-6 Cylinders, 3-75-H. P.

The Frisbie Remarkable Valve Cage is Simple & Popular

THE FRISBIE MOTOR, COLL. ST., MIDDLETOWN, CONN.

"Perfect" Gasoline Pipe Line Filter



(One-third actual size.)

Patent Pending

A—Inlet (low).
B—Outlet (middle).
C—Air-vent. Screw over inlet.
D—Nut to hold bellows rod tight.
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G—Chamois bellows.

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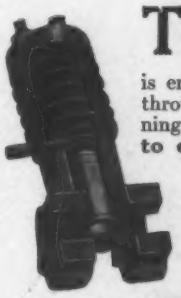

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is entirely out of the way on a boat, and a small lever throws it into action or stops it while the engine is running. **¶No Appreciable Extra Power is required to operate it.** The whistle can be blown at thirty seconds after starting up the engine. It will pump a ten-gallon tank up to 60 pounds pressure in ten minutes with the engine making 450 revolutions per minute.

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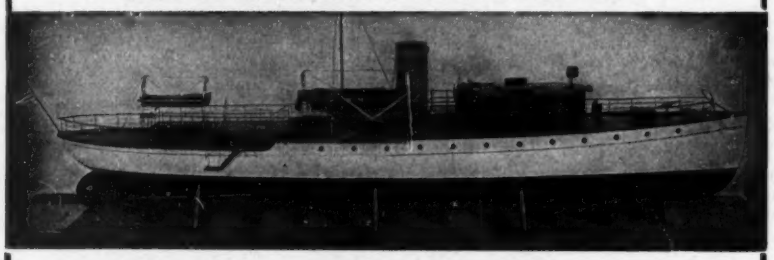

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Inter-Club Racing Association

(Continued from page 195.)

regatta, which is necessary if interest is to be fully sustained throughout the season.

At this celebration, Commodore John F. Burke, of the South Boston Yacht Club, presented his ocean race cup to John T. Cavanagh, owner of the Meemer, and also awarded cups won on the South Boston Yacht Club cruise. Secretary Campbell read a statement of the distribution of the prizes during the season, in which it appeared that at least 2,500 men took part in the twenty regular races and two ocean races of the association, with a total number of about 675 boats starting.

Next day, Sunday, the Annual Rendezvous Run from Hull to South Boston brought the racing season of 1912 to its official close. A beautiful summer's day graced the parade, and as the fleet of almost 200 boats passed along the West Way channel to South Boston, with "Cock of the Walk" pennants flying proudly on the champions and almost every craft covered with strings of flags, it made a most gorgeous yachting pageant. The vast number of sailing yachts spread over Hull and Quincy Bays showed ample evidence of the fact that sailboats have once more come into their own on Massachusetts Bay.

On October 18 the regular semi-annual meeting of the association was held at the South Boston Yacht club house. The most important action taken at this meeting was the admittance to membership in the association of the Hingham Yacht Club, making the eleventh club to join the organization. It was also announced at this meeting that the Jeffries Yacht Club would soon apply for membership, so that when the 1913 season opens on May 30 twelve Inter-Club Association Clubs will be represented.

October 26 the annual Inter-Club Association banquet was the last official event of the season of 1912. Over two hundred yachtsmen were present at this celebration, which was held in the banquet hall of the Revere House, Boston. "Inter-Club Jack" Harland, president of the association was given a rousing reception when he was introduced as toastmaster by Secretary Campbell and was almost taken off his feet when a surprise was sprung on him in the presentation of a beautiful silver mounted gavel, which was given him by members of the Corinthian Yacht Club as a recognition of the Inter-Club's large representation at the mid-summer regattas in Marblehead.

With every prospect that the coming 1913 season will eclipse all previous ones, with the probability that the Inter-Club Association will soon absorb the old Yacht Racing Association and thus gain double strength, and with all the Massachusetts Bay Yacht Clubs working in perfect harmony, the yachtsmen of the Old Bay State can see their course free and clear before them with a fair wind and a smooth sea.

Ideal 30-Ft. Cruiser

(Continued from page 190.)

On the port side is the ice box under the bridge deck. Under the center of the bridge deck is a large food locker, the steps being hung on rod so they will slide. On the port side there is a enameled sink. Next to this is space for either Shipmate coal or a kerosene stove.

On the starboard side is the toilet room, with knockabout closet, folding washbowl, shelves for towels, etc. In the after end of this room is space under the bridge to hang oil skins, sea boots etc., with a grating floor, so any water on them will go to the bottom of the boat and not stand on the toilet room floor. There is 5 feet 8 inches headroom under the slide, and, with a mirror in the toilet room on the side, one could shave.

Partially bulkheaded off from this steerage is the main cabin. This room has 5 feet 2 inches headroom in the lowest part and 6 feet under the skylight. It has two transoms, 1 foot 9 inches wide, which extend and use the upholstered backs for the extension pieces, thus giving good sleeping accommodations for two persons.

Forward, on the door, there is a full-length mirror. Forward of this door we find a large clothes closet or wardrobe, big enough to get into and hang our decent clothes.